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GLUCOSE INTRAVENOUSLY AS A THERAPEUTIC MEASURE*

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In combating serious diseases, besides the specific effects of the invading micro-organisms, we have to deal with three very important conditions, dehydration, intoxication (from retention of waste products) and nitrogen starvation. The picture is a very complex one, and I shall not attempt to analyze and disentangle all the component signs and symptoms.

It seems to me that dehydration is the least appreciated and therefore the most potent for evil. Three fifths of the body weight is water. A man will succumb to the deprivation of water in a few days, while he can survive the deprivation of food for forty days or more. Water is needed to maintain the volume of the blood necessary for the mechanical efficiency of the circulatory apparatus, to carry nourishment to the cells, to carry away in solution the waste products of metabolism, and to maintain the proper solutions and osmotic conditions essential to normal cell life. Lusk[1] points out that without a sufficient supply of water the fasting organism cannot utilize its own protein and fat for the supply of energy necessary for existence. Water is also very important for certain chemical reactions incident to metabolism. It is an essential factor in heat regulation by evaporation from the skin and lungs; approximately two thirds of a liter being thus utilized daily by a resting man.

When water is abstracted from the blood by natural processes and is not promptly replaced from without, it is taken from the tissues, thereby impairing the normal vital processes of the cells. In the same way, when food is not supplied from without, the body tissues are drawn on and broken down to supply both nitrogenous and nonnitrogenous needs.

The maintenance of a sufficient supply of water from natural sources is interfered with by nausea, conditions of the throat or esophagus which prevent or limit swallowing, conditions of the gastro-intestinal tract which prevent the retention and absorption of water; apathy, delirium and coma. An abnormal and often dangerous loss of water is occasioned by vomiting, diarrhea, profuse perspiration, acidosis, hemorrhage, and by sudden large inflammatory exudates from serous membranes.

We have recently found that in some of our streptococcus pleurisies the nitrogen loss also in these exudates should be reckoned with. The serous exudate contains 1 per cent. of nitrogen, or 10 gm. to the liter. The purulent exudate contains 1.2 per cent. of nitrogen. These figures have been carefully worked out at Camp Lee by Lieutenant Bell of the Streptococcus Commission. Sometimes more than 3 liters were aspirated at one time, and often repeated aspirations were made over periods of several weeks, the exudates still remaining serous. One patient had eleven aspirations in four weeks, although in that case the total amount of fluid drawn was only 1,750 c.c. Purulent cases sometimes discharge large amounts over long periods.

The best known picture of rapid dehydration is that of Asiatic cholera. The best results in the treatment of cholera have been by the free supply of water by intravenous injections. Almost equally striking is the picture sometimes presented in Shiga dysentery and in acute and severe acidosis. Joslin says that the latter patients should be given a liter of water every six hours. Children with dysentery, moribund from dehydration, may be saved by large injections of physiologic sodium chlorid solution into the peritoneal cavity.

This dehydration, with more or less cooperation of sepsis, intoxication and starvation, presents the following picture: Respiration becomes rapid. The pulse increases in rapidity, becomes small and thready, and finally disappears. The systolic pressure falls, sometimes to 60 or 70. The pulse amplitude is diminished. The tongue becomes dry and parched, the skin generally dry, the features pinched, the eyeballs sunken, the tension of the eyeballs markedly diminished. The surface of the body may be cold, and the extremities clammy and shriveled. The patient looks "toxic" and rapidly becomes weaker. Apathy develops, with disinclination to take water or food. There is oliguria, sometimes almost complete suppression, and constipation. Sometimes there is restlessness and irritability, followed by hallucinations, delirium and coma. The loss of weight may be very great.

This picture may occur in empyema, meningitis, typhoid fever, Shiga dysentery, peritonitis, brain abscess, pneumonia and other conditions.

The problem, then, is not merely to supply a sufficient amount of fluid for the daily needs but to make up the extreme deficiency of the past days before the damage shall have become irreparable, while at the same time, energy should be supplied, and the body nitrogen, which is being sacrificed rapidly, should be spared.

The supply of a suitable amount of hypertonic glucose solution intravenously has the following effect: The general appearance improves at once. The features are less pinched. The patient looks brighter and less "toxic." The respiration becomes slower. The pulse becomes slower and fuller. The blood pressure rises. The pulse amplitude is markedly and persistently increased. Erlanger noted much more effect from glucose than from control injections of salt solution. The tongue becomes moist. The patient asks for water and food. The kidneys and bowels become active. If the patient was restless or delirious, he becomes quiet and often goes to sleep while the injection is being given.

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* Chairman's address, read before the Section on Practice of Medicine at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

[1] Lusk, Graham: The Science of Nutrition, Ed. 3, Philadelphia, W. B. Saunders Company, 1917.

This procedure should be repeated, if indicated, at intervals of eight, twelve, eighteen or twenty-four hours, until, with the aid of the oral and rectal administration of water, the normal proportion of fluids has been restored and convalescence established.

Glucose is chosen because it is nontoxic, it is quickly utilized by the organism, it is the best sparer of nitrogen, it is a stimulant to the mechanism of cell metabolism, and it is easily obtained and easily prepared.

When glucose is injected into the blood stream, the first effect apparently is the absorption of water from the tissues, as shown by a fall of the hemoglobin percentage, indicating greater dilution than the water injected will account for. The secretion of the kidneys is temporarily diminished, owing to the need of water in the blood stream.

This taking of water from the tissues may be assumed to remove specific toxins and waste products with it in solution. The glucose is quickly taken up from the blood by the tissues, and this sets free the water either for elimination from the kidneys or for utilization in the body protoplasm. That the glucose is burned there is no doubt. There is an increased heat production which does not follow the intravenous introduction of water or of water with sodium chlorid or urea, as shown by Lusk.

Lusk believes that there is a definite stimulation of the cell mechanism by the food in the blood stream. This accords well with our clinical observation. Many physicians have remarked that the apparent effects of an injection of glucose are often strikingly out of proportion to the quantity of water and sugar used. An injection of 200 or 300 c.c. of a 25 per cent. solution is often followed by a return of thirst and appetite, the reestablishment of a normal flow of urine, a drop of temperature and a definite beginning of convalescence. This cannot be due solely to the water supplied.

The results of a single small injection are particularly striking in cases in which the injection has been followed by a marked reaction—chill, rise of temperature, sweating, etc.

Certain pneumonia patients at Camp Lee during the stage of convalescence, though taking sufficient food and fluid, failed to improve as expected. The tongue showed a tendency to be dry; the pulse was rapid; the extremities were cold and clammy; the appearance was muddy, slightly cyanotic and "toxic"; there was mental sluggishness, or apathy. In four such cases from one to three 25 per cent. intravenous injections initiated a prompt and uninterrupted improvement.

I feel that a reaction following the intravenous injection of glucose is an artefact to be avoided. In the work of Erlanger and Woodyatt,[2] and Wilder and Sansum[3] a large number of injections have been given without reaction. In my cases, reactions have occurred occasionally, but without serious results. It is interesting to note that the apparent effects of some of the reactions we have had strikingly resemble some of the results reported by Miller and others from the intravenous treatment of arthritis by foreign protein and other substances. For example:

> A boy, aged 12, who had been desperately ill for several days with lobar pneumonia with a temperature of 105.3 F., after receiving 300 c.c. of glucose solution had a severe chill of ten minutes' duration and a rise to 108.4 F., followed by a drop of 98 F. in ten hours. Two days later his temperature had risen to 104.5 F., when he received 300 c.c. of glucose, which was followed by a chill with a rise to 107.5 F., dropping to normal in about six hours, followed by a moderate rise for twenty-four hours and an uneventful convalescence.

It is understood, of course, that it was his general condition, not his temperature, that indicated the use of glucose.

After the water is eliminated or absorbed, the blood pressure falls; but the pulse amplitude remains good because the heart muscle has been nourished and stimulated by the glucose.

The loss of fluid into the dehydrated tissues may be more important for the blood volume than the loss of fluid by the kidneys, and indicates an immediate repetition of the intravenous injection.

My experience with the intravenous use of glucose solutions began in 1909. For several years I used only an isotonic solution (51 gm. to the liter), using it in all cases in which I had previously resorted to salt solution by hypodermoclysis.

A series of desperately ill patients with late and neglected pneumonia, brought into the ward of the Pittsburgh Hospital, showed strikingly satisfactory results. I never saw any evidence of hemolysis.

In 1914 I began to use hypertonic solutions.[4] Since then I have resorted to the intravenous use of hypertonic solutions of glucose with greater and greater frequency and with greater and greater satisfaction.

Many of my surgical friends have become ardent converts to its use both before and after operations—in desperate risks, to prepare the patient for operation, and for varied postoperative conditions for which it offers particular advantages. In my service at Camp Lee during the past nine months, it has been used frequently and freely. Many medical officers have become enthusiastic advocates of this measure from their observation of its results in cases of pneumonia, meningitis, typhoid fever, septic peritonitis, empyema and brain abscess.

TECHNIC

The splendid work of Woodyatt and his followers has demonstrated that a man can take care of 0.8 gm. per kilogram of body weight per hour without glycosuria. For clinical work, 250 c.c. of a 25 per cent. solution, which is the strength I ordinarily use, and of which the caloric value is conveniently counted as 1 calory per cubic centimeter, may be given in about one hour to the average adult patient. Spectroscopic analysis and the electric pump are not necessary outside the physiologic laboratory.

Any method for arsphenamin administration is satisfactory for glucose solutions.

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[2] Erlanger, Joseph, and Woodyatt, R. T.: Intravenous Glucose Injections in Shock, The Journal A. M. A., Oct. 27, 1917, p. 1410.

[3] Wilder, R. M., and Sansum, W. D.: d-Glucose Tolerance in Health and Disease, Arch. Int. Med., February, 1917, p. 311.

[4] Litchfield, Lawrence: The Abuse of Normal Salt Solution, The Journal A. M. A., July 25, 1914, p. 307.

Care should be taken in the water used, remembering that sterile water is not necessarily nontoxic. A pure supply, filtered and double distilled, is desirable. Any pure glucose may be used. The solution should be sterilized by autoclave or boiling.

The temperature of the solution should be maintained during the administration at about 100 F. This may be done conveniently by having the tube pass through a large basin of hot water placed beside the patient. The needle is held in position by a piece of adhesive plaster fixing the tube to the arm about an inch from the needle. Small needles are best.

A hypodermic injection of morphin may be given if necessary to control a delirious or hypersensitive patient.

The largest amount we have given at one time was 1,700 c.c., which flowed with an intermission of two hours, continuously for eleven hours, and was not followed by glycosuria.

When we know more about inorganic metabolism, we may rationally modify our solutions accordingly.

EXCERPTS FROM CLINICAL RECORDS

Case 1.—E., admitted because of lobar pneumonia, was irrational for five days after entering the ward, refused nourishment and became steadily weaker. Intravenous injection of 500 c.c. of 25 per cent. glucose solution resulted in immediate improvement.

Case 2.—F., with lobar pneumonia, in a very toxic condition, with tongue dry, brown and coated, was delirious on admission. Intravenous injection of 500 c.c. of 25 per cent. glucose solution caused the patient immediately to become quiet, and improved.

Case 3.—P., with streptococcus infection and purulent pericarditis, had undergone operation, and his condition was very low. Intravenous injection of 25 per cent. glucose solution, 1,000 c.c. given in two doses, effected marked improvement.

Case 4.—C., with lobar pneumonia, Type I, had received 300 c.c. of antipneumococcic serum in three doses, with no improvement. Intravenous injection of glucose solution, 500 c.c., led to immediate improvement.

Case 5.—S., who had Type I pneumonia, was in an unsatisfactory condition though he had received 900 c.c. of antipneumococcic serum. Intravenous injection of 1,500 c.c. of glucose solution caused him to improve markedly, but he developed streptococcus infection (as shown by blood culture) and died.

Case 6.—N., with lobar pneumonia of very severe type, lost strength and refused nourishment. Intravenous injection of 500 c.c. of glucose solution resulted in immediate improvement.

Case 7.—L., an alcoholic, with lobar pneumonia, had been delirious seven days and was thought to be dying. Intravenous injection of 250 c.c. of glucose solution was performed. Improvement began at once and recovery followed.

Case 8.—F. was brought in delirious on the third day, Oct. 24, 1917, with epidemic meningitis. He developed pneumonia with phlebitis of the left leg, and had nine intraspinal and two intravenous injections of Flexner's serum. In the third week he was semicomatose, but intravenous injection of 210 c.c. of 25 per cent. glucose solution resulted in marked improvement from a condition typical of toxic dehydration. Next day 250 c.c. led to striking improvement; the mouth became moist, the patient took fluids, the kidneys became active, the mental condition steadily improved and slow convalescence followed.

Case 9.—S., a pneumonia patient in a condition of marked dehydration, was given 1,250 c.c. of 25 per cent. glucose solution intravenously in three days. Convalescence was established.

Case 10.—H. presented a septic type of temperature and dilated heart following pneumonia with dehydration. Intravenous injection of 1,220 c.c. of 25 per cent. glucose solution in three days led to recovery.

Case 11.—S., with pneumonia of Type II, was very toxic, dehydrated, and his nervous system was much disturbed. Intravenous injection of 2,350 c.c. of 25 per cent. glucose solution in five days led to recovery.

Case 12.—W., a pneumonia patient, was very toxic and dehydrated. Intravenous injection of 580 c.c. of 25 per cent. glucose solution in one dose was followed by immediate improvement, going on to recovery.

Case 13.—B. (colored), with pneumonia, had a temperature of 105 F. and was in a very desperate condition. Intravenous injection of 400 c.c. of glucose solution was followed by chill and delirium; the temperature dropped 4 degrees in three hours. Four days later, 400 c.c. were again given, this time with no reaction. Recovery was very rapid.

A STUDY OF DIAPHRAGMATIC MOVEMENTS IN ACUTE ABDOMINAL INFLAMMATION *

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Limitation of diaphragm movement in the presence of certain intra-abdominal lesions is well known. About twenty years ago Czerny[1] cited postoperative limitation, with its resulting pulmonary congestion, as one of the causes of postoperative pneumonia. The diagnostic importance of the position of the diaphragm and of its motility in differentiating between supraphrenic and subphrenic disease is often referred to in the literature.[2] The lesions to which this effect on the diaphragm is attributed are those that involve contiguous organs. Thus, Hubeny[3] cites gastric ulcer located at the esophageal opening. Hughes[4] says:

> The diaphragm, if its peritoneal surface be inflamed or irritated from any cause whatever, e. g., a perforating gastric ulcer, will be thrown out of action in the same way as the abdominal muscles. If only one half is affected, that half will not move so freely as normally, and it is probably on this account that the occasional difficulty in diagnosis arises between a lobar pneumonia and a perforated gastric ulcer.

My attention was first called to a unilateral inhibition of diaphragm movement and diminished lung ventilation in a man who had been operated on because of an acute appendicitis; a few hours after recovering from the effects of the anesthetic (ether) he developed a slight cough, but no elevation of temperature. At the request of the surgical service his lungs were examined. This examination was negative except for absence of breath sounds in the lower right axilla and the lower right back. He was seen a few hours later, and this absence of breath sounds was no longer noted. He made an uneventful, afebrile recovery. These auscultatory findings could not be explained on the basis of a pulmonary lesion. It was thought that the absence of breath sounds may have been due to a splinting of the right lung and that this splinting may have been a reflex protective mechanism to shield the area damaged by appendical inflammation and surgical trauma. It was argued that if this condition existed after operation, it might reasonably be looked for before operation, and it was determined to examine as many cases of acute abdominal disease as possible with this end in view. Through the kind-

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* Read before the Section on Practice of Medicine at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

[1] Czerny, quoted by Henle: Arch. klin. Chir., 1905, p. 130.

[2] Hoover, C. F.: *The Functions of the Diaphragm and their Diagnostic Significance*, Arch. Int. Med., August, 1913, p. 214. Adams, J. E., and Cassidy, M. A.: Acute Abdominal Diseases, London, 1913.

[3] Hubeny, M. J.: Am. Jour. Roentgenol., 1916, **3**, 364.

[4] Hughes, E. C.: Guy's Hosp. Gaz., 1917, **21**, 294.

ness of the surgical service at base hospital, Camp Wadsworth, S. C., notice was given of all patients that on admission had abdominal pain. Stress of work made it impossible to see all these patients or to study any of them very carefully. Twenty-five patients in all were seen and examined, and the observations made form the basis for this report.

The diaphragm is one of the most important muscles of the body, ranking second only to the heart as a "vital organ." This is not the place to consider minutely its anatomy and physiology. A few cardinal facts should be kept in mind. The inspiratory enlargement of the thoracic cage takes place in three dimensions. The increase of the longitudinal diameter of the thorax is due solely to the descent of the diaphragm.[5] This has a direct bearing on our problem. Increase of the anteroposterior and transverse diameters (scaleni and intercostals) can be accomplished without influence on a diseased area in the abdomen, that is, without raising intra-abdominal pressure. The diaphragm is supplied by the right and left phrenic nerves, derived from the anterior primary divisions of the third, fourth and fifth cervical nerves. The nerve filaments that pass to the diaphragm from the lower four intercostal nerves are sensory in function and supply only the peritoneum. Inhibitory fibers have not been demonstrated in the phrenic nerve.[6] This is important to remember in an attempt to explain the phenomenon of unilateral inhibition of the diaphragm.

SCOPE OF THE EXAMINATION

The examination of the twenty-five soldiers, which forms the basis of this report, was conducted as follows: Notice was received that a patient with suspected acute abdominal disease (in every case but one, appendicitis) had been admitted to one of the surgical wards. The patient was seen, and auscultation of the chest was first done. The abdomen was then examined and the findings noted. The soldier was then taken to the roengen-ray laboratory, and the screen examination was made with the subject in the horizontal position. Those patients that were to be operated on were not given a preliminary morphin injection. No attempt was made to influence the surgeons on the grounds of the auscultatory and screen examinations, as the validity of the conclusions arrived at had not been established. As the investigation progressed, however, I learned to lean more and more on the evidence furnished by the diaphragm sign. The auscultatory difference between the right and the left side was solely a quantitative one in the inspiratory murmur, its loudness, length and intensity. The inspiratory murmur was usually noted as "feebler" on one side than on the other. The roentgen-ray examination consisted of a comparison between the amplitude of the excursion of the right and left halves of the diaphragm.

The majority of cases examined were clearcut cases of acute appendicitis, catarrhal, gangrenous and perforative. The degree of fixation of the right diaphragm, estimated by the intensity of the breath sounds and by the screen, varied somewhat with the severity of the local condition. This relationship was by no means constant, nor could it be estimated quantitatively so that it might be used in foretelling the character of the inflammation that was to be found. The roentgen ray in every case substantiated the stethoscopic findings. The right diaphragm was as a rule flatter than the left. Its movement was limited when compared to the left, and there was less lighting up of the right than of the left costophrenic sinus. In sixteen cases in which the diagnosis of acute appendicitis had been made, the diaphragm sign was positive and at operation an acute inflammatory condition was found. In three cases the physical signs were questionable so that operation was delayed. In these cases the diaphragm sign was positive and later operation showed an acutely inflamed appendix. In three doubtful cases the diagnosis of appendicitis was made by some of the surgical assistants. In these cases the diaphragm sign was negative. These patients were not operated on and made uneventful recoveries. It is not certain that one or more of them did not have acute appendicitis that subsided without operation. In three cases that were unhesitatingly called acute appendicitis because of history and physical signs in which the diaphragm sign was negative, normal appendixes were found at operation.

It may be interesting to give a few details concerning some of these cases:

REPORT OF CASES

Case 1.—Private P. G. W., Reg. No. 6189, was admitted with a history of headache and pain in the right lower quadrant radiating down to the scrotum, with nausea, but no vomiting. The usual abdominal signs were negative, so that this was not considered a case of acute appendicitis. My notes on the diaphragm stated that there was a distinct suppression of breath sounds on the right side in the axilla and back. Screen examination revealed some flattening of the right diaphragm. Diaphragm movement on the right was less than on the left, and the lighting up of the left costophrenic sinus was much more pronounced than the lighting up of the right. The patient was operated on twenty-four hours after admission, and the surgeon noted retrocecal appendix, erectile, acutely flexed, walls thickened, vessels injected, bulbous tip.

Case 2.—Private G. G., Reg. No. 6213, had a ruptured appendix with some free pus in the peritoneal cavity. The diaphragm sign was acutely positive, but in spite of the peritoneal involvement, the left diaphragm moved freely.

Case 3.—Sergeant H. K., operated on for acute appendicitis, April 12, 1918, had a rise of temperature, April 15, to 102. He was referred to the medical service for the purpose of determining whether or not there was a postoperative pneumonia. Roentgenoscopy revealed a most startling difference between the movements of the two halves of the diaphragm. The excursions on the left side were fairly adequate; the left costophrenic sinus lighted up well. The right diaphragm was practically fixed. Most careful scrutiny revealed a minimal excursion in the central portion of the right half of the diaphragm. Necropsy disclosed a suppurative peritonitis limited to the right side of the abdomen.

Case 4.—Private C. R. W., Reg. No. 6675, began to be ill with sharp, cramping pains in the lower right abdomen. A few hours later there were nausea and vomiting. The findings of the ward surgeon were tenderness, pain and rigidity over the entire abdomen, especially marked over McBurney's point, and he diagnosed acute appendicitis. The temperature was 98, the leukocyte count, 15,800. The diagnosis of the ward surgeon was concurred in by the assistant chief of the surgical service, and immediate operation was advised. No difference was to be made out in the intensity of the breath sounds over the right and the left lungs; the diaphragm sign was negative. At operation a normal appendix was found.

Case 5.—First Lieutenant M. H. D., Reg. No. 6396, admitted to hospital with an acute tonsillitis, April 10, 1918, developed pain in the abdomen, April 13, and was nauseated. The chief of the surgical service, April 12, noted that the patient was "nervous" and complained of pain in the abdomen which was relieved by pressure. There was some tenderness in the right iliac fossa. There may have been an acute appendicitis, but he was not certain. From examination of the chest it was noted that the breath sounds over the right lower back were not as distinct as those over the left back, and this difference was noted in the axillae. The patient's temperature from the time of the onset of the abdominal pain was never above 98, and his pulse at no time more than 84. The leukocyte count was 20,600. Operation disclosed an acute gangrenous appendicitis.

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[5] Hoover, C. F.: Diagnostic Signs from the Scaleni, Intercostal Muscles and the Diaphragm in Lung Ventilation, Arch. Int. Med., November, 1917, p. 701.

[6] Erlanger, Joseph: Personal communication to the author.

Case 6.—Private G. B. T., Reg. No. 7639, had pain in the right lower abdominal quadrant, with nausea and vomiting. The assistant chief of the surgical service decided on operation because of an acute appendicitis. Auscultation of the lungs revealed inspiration over the right base and in the right axilla louder than in the left side. Roentgenoscopy disclosed no lagging of the right diaphragm; in fact, there was more movement there than in the left side. The diaphragm sign was negative. At operation a normal appendix was found.

Case 7.—Private I. H., Reg. No. 7666, presented an instructive case. The clinical diagnosis was acute appendicitis. Auscultation revealed very feeble breath sounds over the lower part of both lungs. The screen showed two halves of the diaphragm at exactly the same level. Movement on both sides was limited and jerky in character, not at all like the normal undulation. The findings could not be interpreted, but it was surmised that hyperacute appendicitis with peritoneal involvement might give this picture. The operative findings were acute, ulcerative appendicitis with beginning peritonitis.

Case 8.—Private W. N. had hyperacute, ulcerative appendicitis. Inspiration on the right side was feebler than on the left. Roentgenoscopy revealed the diaphragms at about the same level. Movement on the left side was limited and on the right side absent except for very slight descent of the central portion.

Case 9.—Private P. D., Reg. No. 6302, had pain in the right hypochondrium, with rigidity of the right upper rectus and tenderness over the region of the gallbladder. He was kept under observation for some time. There was fever of the septic type. A diagnosis of suppurative cholecystitis was made by the chief of the surgical service and concurred in by five or six consultants. There was no diminished breathing over the right lung such as one would expect to find in an acute cholecystitis. Roentgenoscopy revealed no pulmonary lesion. The right and left diaphragm moved equally and well. The excursions were ample and normal. At operation a normal gallbladder was found.

DIAPHRAGM MOVEMENTS IN NORMAL SUBJECTS

Screen examinations of the diaphragm movements in soldiers who had known no thoracic or abdominal diseases were made for comparison. These were all made with the soldiers in the horizontal position. It was observed that when any difference could be made out, the right diaphragm moved somewhat more than the left. In most cases, however, the amplitude of the excursions, as far as they could be accurately measured, appeared to be equal on the two sides.

LIMITATION OF MOVEMENT IN ACUTE ABDOMINAL DISEASES

In a small number of cases it has been shown that there is a limitation of movement of the diaphragm in acute abdominal diseases. It has been demonstrated that this limitation of movement is confined to the side that corresponds to the site of the lesion, or at any rate is much more pronounced on that side. We have shown that this limitation of movement occurs not only in cases in which there is an involvement of the peritoneal surface of the diaphragm but also in cases in which the lesion is remote. No definite explanation of this process can be offered. If the phrenic nerve has no inhibitory fibers it cannot be due to the transmission of reflex inhibitory impulses down this nerve. It may be due to an inhibition of the motor phrenic center in the cord. The diaphragm may be immobilized simply in a mechanical fashion through rigidity of the abdominal wall. Voluntary inhibition may explain some of these cases. Professor Erlanger[6] of Washington University, St. Louis, has said that it is conceivable that a person might be able to inhibit voluntarily one half of the diaphragm.

It is believed that the study of the diaphragmatic movement with the stethoscope, with the fluoroscopic screen and perhaps with other methods may be of some assistance in arriving at a conclusion in cases in which the diagnosis of an acute abdominal lesion is suspected but not established. It seems very desirable that clinicians should study these cases from this point of view. It is only by careful observation of many cases that the practical usefulness of the diaphragm sign can be established.

ABSTRACT OF DISCUSSION

Dr. J. Birney Guthrie, New Orleans: The new application of Williams' diaphragm sign is exceedingly interesting. We have observed the limitation of motion of the diaphragm in all thoracic diseases. We regard it as a diaphragmatic reflex, a diagnostic measure of great importance in the examination of the chest. There are two other methods of observing the motion of the diaphragm. One is the familiar Litten's phenomenon, which disappears in the course of certain thoracic diseases, and the other consists in the percussion of the line of the diaphragm during quiet and after forced inspiration, and measuring the distance between the lower lung borders during the two phases.

It does not seem mysterious why the diaphragm remains fixed. The occurrence of a spastic reflex seems an adequate explanation. We see a similar phenomenon around a joint in disease. The limb is fixed by a spastic reflex action on the part of the muscles that control that joint. The joint is held in fixation until irritation has subsided. A wasting of the muscles above and below the diseased joint always occurs as a result of this spastic innervation of the muscles. Pottenger has studied the wasting of overlying muscles in thoracic disease, especially in pulmonary tuberculosis. He attributes considerable prognostic value to the degree of that wasting. It is possible that atrophy of the diaphragm exists. It will be exceedingly interesting to study this reflex in an abdominal disease, where heretofore we have been considering it in its relation to thoracic disease only.

Dr. F. M. Pottenger, Monrovia, Calif.: Dr. Sale has pointed out an exceedingly interesting phenomenon. It belongs to the group of viscerogenic reflexes. I do not believe that we can explain this reflex through the phrenic nerve. It must be through the lower intercostals. The phrenics take their origin from the third and fourth cervical segments of the cord, and are in reflex communication with afferent impulses which come from the lung. The abdominal viscera, however, are supplied by the sympathetic nerves, which take their origin from the lower six thoracic segments of the cord. Afferent sensory impulses, traveling centralward from the abdominal viscera, transmit their impulses to the six lower intercostal nerves which supply the intercostal muscles, the costal portion of the diaphragm and the abdominal muscles. An inflammation in the lung forms reflexes with the motor and sensory neurons arising in the cervical portion of the cord, particularly the third and fourth segments. The motor reflex shows in the accessory muscles of respiration, particularly the sternocleidomastoideus, scaleni, trapezius, levator anguli scapulae, rhomboidei and diaphragm. Whenever inflammation exists in the lung, some portion of these muscles shows increased tension, which, in the diaphragm, shows as a lessened respiratory movement on the side of involvement. Reflexes arising from the abdominal viscera would be accounted for more readily as taking place through the lower six intercostals, the reflex being in the costal portion of the diaphragm rather than in the central tendon, which is supplied by the phrenics.

The observation of these visceral reflexes is of great clinical value. They aid in the study of the manner in which disease processes express themselves in internal viscera. Every important organ of the body stands in definite relationship through the sympathetic nerves which supply it, with certain spinal motor and sensory neurons, which, when irritated, cause contraction of skeletal muscles and referred pain in certain skin areas. I would call attention to the fact, however, that the same limited motion mentioned by Dr. Sale when abdominal viscera are inflamed is found when thoracic viscera are inflamed. Therefore, it would be wise for those who are observing surgical cases of the abdomen to bear in mind that such a reflex may be produced by diseases above the diaphragm; and, likewise, it would be well for those who with thoracic diseases to remember that a reflex limited on of the diaphragm may also be caused by diseases in abdomen. I do not know of any one having described this reflex before, although the physiologic basis for its existence is definite.

Dr. Walter E. Scott, Adel, Iowa: This subject has been investigated entirely from the thorax, because of the fact that the vesicular respiratory murmur is not necessarily due to the ingress and egress of air. This was shown by a case Dr. Hoover reported some years ago, in which there was severe hiccup for several days before death. The air did not enter the lungs on account of the spasm of the glottis, but the vesicular respiratory sound was present, nevertheless. I have tried to show that the vesicular respiratory murmur is due to another cause; it is closely related to the muscles. The lessened activity of the muscles on the side affected, including the diaphragm, gives a diminished muscle sound and, therefore, a diminished vesicular sound. The diminished muscular activity is due to the inflammatory condition, and because of the diminished respiratory murmur on the side affected it has always been considered from the chest standpoint, as the diminished breath sounds appeared to point to trouble in the chest. I investigated the origin of the vesicular respiratory sound very thoroughly quite a while ago, but have not yet reported my findings, except occasionally in discussions.

Dr. John A. MacDonald, Indianapolis: I have been greatly interested in Major Sale's observations on the diaphragmatic sign in acute abdominal inflammation. The most important paper in the history of this study has been lost sight of. Ten or twelve years ago, in a carefully reported study of the pleuritic reflexes, a clinician, whose name has escaped me, came to the conclusion that the diaphragmatic reflex arises from a zone approximately 2 inches wide adjacent to the lateral thoracic pleura. The reflex travel by the route of the phrenic and perhaps the pneumogastric to the bulb and are referred to the scalenes and more particularly to the upper border of the trapezius muscle, leaving a spot at the upper border of the muscle which is intensely sensitive at that time. The outer zone is reached by the route of the lower intercostals, the lower intercostals referring the pain downward. At that time we were in confusion about the pain as existing in appendicitis and in basilar pleurisy. In the last ten years I have seen ten patients who were operated on for appendicitis and a normal appendix was found. In these cases the tenderness picture was characteristic. They proved to be cases of pleurisy. In each one of the adults, who were in a mental condition to respond to questioning instantly, the trapezius sign was typical, so that in going to the upper border of the trapezius tenderness was invariable.

One of my patients still had a temperature elevation three weeks after a diagnosis of appendicitis. The roentgenogram appeared to be normal, although there was limitation of movement and slight arching of the right diaphragm. Being suspicious of a subdiaphragmatic empyema, I introduced a needle and operated successfully with the needle in situ. This sign requires greater study and more careful consideration, but I am grateful for it in the differentiation of appendicitis and lung conditions.

Dr. Llewellyn Sale, St. Louis: I was glad to hear these explanations for the diaphragm sign, because that was what I have been looking for. Major Guthrie's explanation does not explain. To say it is a spasm does not explain much to me. A statement like that needs a little explanatory comment as to the nature of the reflex, its course, etc. Dr. Pottenger's explanation did throw a little light on the subject. I submitted the whole matter to Professor Erlanger of Washington University, and he seemed to be of the opinion, and it coincided with what I had thought, that the sign was due largely to that same inhibition of muscular movement in the abdominal wall that one finds in acute abdominal inflammations; that the whole process was a teleological one, that it is not so much to lessen trauma, but rather to keep down pain. While that does not explain, it explains a little more than the term "reflex spasm," which Major Guthrie offers.

The point that was mentioned by Dr. MacDonald was a very enlightening one; in those rare situations in which we have to differentiate between an acute abdominal lesion and an acute diaphragmatic pleurisy the sign would not, it seems to me, be very helpful. Things that have caused me trouble are the chronic thoracic lesions and their possible confusion with intra-abdominal conditions.

An example is chronic pleurisy, tuberculous in character, which simulates gastric or duodenal ulcer until the patient finally fills up with fluid, and we know then what we are dealing with. Dr. MacDonald's discussion makes me realize that acute conditions might arise in which this sign would not be very helpful in interpretation.

THE RESPONSIBILITY OF INDUSTRIAL BOARDS TO EMPLOYER AND EMPLOYEE

AS INFLUENCED BY THE OPINION OF THE MEDICAL EXAMINER *

CHARLES S. ANDRUS
Chairman, Illinois Industrial Commission
CHICAGO

It is estimated by competent authorities that in the United States annually more than 1,000,000 men are killed or injured in industrial accidents. In practically all fatal cases dependents are left, and in practically all nonfatal cases the injured employee is dependent on his wages for the support of himself and family. Adequate provision for the injured employee and his dependents is worthy of the best study and thought. I can briefly present only a few facts within the limits of this paper, asking you to consider them, not only as they affect your professional work, but also as good citizens interested in the welfare of your fellow men.

If the medical fraternity were as conservative and as jealous of precedent as the legal fraternity, to which I belong, they might still be arguing that antitoxin is not necessary in the treatment of diphtheria; that surgery is not necessary in the treatment of appendicitis; that trauma never produced a hernia, and that there couldn't be anything the matter with a man because there was no evidence of an organic lesion. I am thankful to state, however, that physicians are not bound by precedents, and to this untrammeled freedom of thought may be ascribed the wonderful advance that has been made and is still being made in the science of medicine.

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* Read before the joint meeting of the Section on Preventive Medicine and Public Health and the Section on Orthopedic Surgery at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

It is still difficult for lawyers to break away from old precedents. I am sorry to confess that the adoption of the compensation principle for accidental injuries, instead of the archaic and decidedly unsatisfactory common law personal injury suit, was not primarily the work of the lawyers. Be it said to their credit, however, that there was no concerted opposition to this measure from them, although they knew that it would decrease litigation along personal injury lines.

THREE METHODS OF ADMINISTRATION OF COMPENSATION ACTS

Workmen's compensation acts are now in force in thirty-seven of the forty-eight states of the Union. The earliest act dates only from 1911, so it may be seen that the spread of the compensation principle has been rapid. These acts are administered in different ways in different states. Twenty-three states have industrial boards or commissions; four states each have a single commissioner; and in ten states the act is administered by the courts. Five states have a monopolistic state-managed insurance fund from which the compensation is paid, and nine states have privately managed insurance companies in competition with the state-managed insurance fund.

We thus have three widely different methods of administration, and this should be borne distinctly in mind in considering the status of the medical adviser. In one class we have the act administered by the courts, in another class, claims paid directly from the state fund, and only on approval of the industrial commission, and in a third class, disputed claims only litigated or determined by the commission.

In these states in which the compensation act is administered by the courts, medical questions are determined generally as in other cases, by testimony, expert and otherwise. In at least one state, however, the court has the power to appoint an impartial medical referee to advise him. The method of determining the extent of physical disability by expert testimony has not proved a success. I do not consider that the physicians themselves are entirely to blame for the failure, for the fault lies in the system itself. The physician, who is the expert witness, is not allowed to volunteer his opinion. He is merely asked to answer the questions that are propounded to him by the attorney. The attorney is a partisan and is developing only his side of the case. If the expert witness has any information or opinion that would not help the side of the case on which he is called as a witness, he is not allowed to tell or express it. If, on cross-examination, this is elicited from the witness, it has the appearance of being something concealed by him and places him in an unfavorable light. Usually, however, the witness feels that he is being attacked by the cross-examining attorney and that it is a personal fight between them. Frequently also, one physician testifies to objective symptoms, and another to subjective symptoms, and to the layman this gives their testimony the appearance of being in conflict, while in reality no such conflict exists. How a layman is to decide a disputed question of extent of disability, when an equal number of apparently equally honest and intelligent physicians testify exactly opposite to one another, is a problem the correct solution of which would be of great assistance to tribunals who are compelled to solve it.

PHYSICIAN'S PART IN ADMINISTRATION

The physician's part in the administration of workmen's compensation acts is a large one. The extent of disability caused by accident is in dispute more than any other point, in fact more than all other points combined. The tribunal passing on this question must of necessity rely very largely on the opinion of a physician in determining this question. So also frequently in death cases the question in dispute is whether the accident caused the death, and in this matter the physician must be appealed to in deciding the question.

It is not a question in administration of dispensing with physicians, because this cannot be done, and no one wishes it to be done, but the administrative problem is how to secure this opinion in the best possible manner. In states that have a monopolistic state fund from which compensation payments are made, the problem is much simplified, although the work rendered by the physicians of the commission is much more extensive. In Ohio, which has this system, more than 7,000 examinations are made annually. The physician's bill, as well as the injured employee's compensation, is paid from the state fund. There is thus every inducement for the physician to assist the commission in its work, and to disclose fully the medical facts in each case. In very few cases is the medical man compelled to testify. A claim is made by the injured employee, substantiated by the statement of a physician, and the compensation is paid directly from the state fund.

It is, however, in states that do not have this system that the principal difficulty arises. In a large number of states, as in Illinois, there is no state fund, and compensation is paid directly, either by the employer or the insurance company. Duplicate receipts of payments made are sent to the industrial commission and a check and record is kept of compensation payments in this manner.

It is, however, only in disputed cases that the commission is called on to decide whether compensation shall be paid and in what amount. In Illinois, in 1917, there were 3,238 such contested cases. July 1, 1917, the compensation act was made compulsory as to all hazardous occupations, and if the same ratio of increase continues during the remaining months of the year as has occurred thus far, there will be 5,166 such disputed claims filed in Illinois during the year 1918.

PHYSICIAN'S SERVICES TO INDUSTRIAL COMMISSION

More than half these claims involve the question of the extent of the disability. The law in this state allows the industrial commission on its own motion to have the injured employee examined by a physician of its own choice. The Illinois commission has established a medical department of which Major P. B. Magnuson is the director. He spends each afternoon at the commission's office and another physician spends the forenoon. We thus have a physician on whom we may call at any time for examinations or advice. Major Magnuson has been in Washington for some time assisting the Surgeon-General in war work, and his place has been ably taken by Dr. W. E. Shackleton.

In disputed cases in which the medical testimony is in conflict, we have the employee examined by our physician and consider his report in deciding the case. This is of inestimable value to us. We know that our physician is unprejudiced, that he was not brought into the case by either side and that he will give us a fair and impartial opinion. And naturally this opinion is considered of great weight by us.

Not only in disputed cases is a medical department desirable, but also in the case of lump sums and settlements, which are usually agreed matters. The employer or insurance company agrees to settle a case with an employee for a certain amount, and the employee is willing to accept this. The employee in such cases usually has neither a physician nor a lawyer. Our law provides that these settlements cannot be made without the approval of the industrial commission. In such cases especially does the commission need the advice of an impartial physician to examine the employee and to advise the commission whether in his opinion the settlement should be approved. In Illinois in 1917 there were 2,485 cases of this kind. In 1918, with the same ratio of increase that has occurred during the preceding months of the year, there will be 3,192 such cases.

Not only in the examination of injured employees is the medical director valuable to the industrial commission, but also in the analysis of medical testimony, the explanation of which is not easily understood by a layman, and in numerous other ways including the giving of advice on medical matters. In many cases it is desirable that the injured employee should be examined by a specialist. It may be an eye specialist, a specialist on nervous and mental diseases, or a specialist in laboratory or radiographic work. It is the province of the medical director to select these experts—something that could not be satisfactorily done by a layman, especially in a city the size of Chicago.

SERVICES TO EMPLOYER AND EMPLOYEE

It is to the interest of both employer and employee that proper medical services be furnished the injured employee. The medical director can do much to assist in encouraging employers to procure the proper kind of medical treatment. They may be shown that there is nothing more costly than cheap medical work. The experience of one large firm in Chicago with their medical department illustrates this. This company was paying the head of their medical department $75 a month and imagined they were saving money. They concluded to change their system and put a trained surgeon in charge. The first year the medical expenses increased 800 per cent. In the preceding year this company had had thirty-one lawsuits. In the first year of the new system they had one suit and the claim department saved $30,000.

This was accomplished in several ways. Regardless of expense, the men were given the proper kind of medical treatment and they were able to return to work sooner. The medical director told the men the exact truth about their condition, and he did not act as a sounding board for the claim agent. The consequence was that the men had confidence in him, and the ambulance chaser did not succeed in stirring up trouble. They were ready to make a settlement on what the physician told them, as they knew he was telling them the truth. Taking into consideration, aside from the actual money saved, the increased good feeling between the employer and employee, which is so necessary in modern industrial times, it may readily be seen that cheap medical treatment does not pay. The medical director may do much to show this to the employer and to the insurance companies that have not yet found it out. Fortunately most of them have.

The medical director can do much along this line in advising employers as to the attitude of the physicians they employ. The physician who has the mental attitude that every injured man is either a malingerer or is greatly exaggerating his injury has no place in industrial surgery. If a man is a malingerer, the physician will find it out sooner by pretending not to consider him such, and if the medical man is mistaken in this respect, he frequently causes the patient to put himself in the mental attitude of wanting to be as sick as he can to spite the physician and show him up. The other extreme is nearly as bad, and the physician who tells the man that he has a broken spine when he hasn't and that he will never be able to work any more is frequently the cause of many industrial cripples.

THE PHYSICIAN'S WORK IN REHABILITATION

The medical director may do much to assist the commission along the line of rehabilitation and retraining of injured men. It frequently happens that a laboring man has an arm amputated, for example, and honestly considers that there is nothing further that he can do, and that his usefulness is forever gone. The state has not done its duty to this man by merely paying him his compensation, which is soon gone. He should be trained for other work. The treatment is mental as well as physical and should be a part of the work of the medical department.

For this purpose the medical director should study the man, taking into consideration his age, mentality and education, his likes and dislikes, and the condition of the labor market. He should be definitely trained for some other line of work in which he may be made a 100 per cent. man.—I lay emphasis on this 100 per cent. man, as that is the aim of the rehabilitation and the results accomplished. In a number of cases, men have lost an arm and have been trained for some other work, and have made more money than they have ever been able to make with two arms. The United States government, having the advantage of the experience of Canada and the European countries in the war, is outlining an elaborate plan for the rehabilitation of injured soldiers. All this work, of course, must not stop with the care of injured soldiers, but the facilities thus used and the experience thus gained must be used for the training of injured workmen.

No one class of persons in the present war have distinguished themselves more than the physicians. The critics all agree that no matter what defects may exist in other branches of the service, the medical staff has been 100 per cent. efficient. Never before in any war have medical men been exposed to so much actual danger and been so much under fire. Those of us who are particularly interested in injured workmen confidently expect that after the war the great knowledge and experience attained by the medical profession will be used for the benefit of men injured in industry. For as peace has its victories no less than war, so peace, no less than war, has its injured men, who are in fact much more numerous in the aggregate than war's wounded soldiers. And we know that in striving for better conditions for these injured men, we shall have the hearty and enthusiastic support of the medical profession.

ABSTRACT OF DISCUSSION

Dr. William Krusen, Philadelphia: I have been, so far, without any personal experience in medical expert testimony. I think that many doctors are deterred from this by a certain amount of fear of the members of the legal profession. It was Gladstone, I believe, who said, "The perpetuation of these two professions is assured; because law rests on dissention, while medicine rests on disease." The one point that I think we should emphasize is the necessity for immediate impartial medical expert testimony. The medical man never presents such an undignified and unedifying spectacle as when he is being examined as a party in a damage suit case. He loses his dignity and his prestige when he attempts to maintain both. The division of his fee, it being paid by both plaintiff and defendant, makes it possible for him to give his testimony without offense to his conscience or to any one, with dignity and truthfulness, which is usually the aim of the medical man. Some of you may have read the book of Münsterburg called, "Psychology on the Witness Stand," in which he shows the difficulty which a man who is retained by either side has in trying to give testimony as unbiased as if he were retained by neither side. Let us put ourselves on record as being in favor of an expert medical board, not retained by either plaintiff or defendant.

Mr. Charles S. Andrus, Chicago: I wish it understood that I do not criticize the medical profession as a class because of what I consider the evils of expert testimony. I understand that a lawyer will not bring in an expert witness to testify unless he knows that that witness will substantiate his theory of the case. No fault can be found with the lawyer for so doing. In fact, if he did not do this he would be guilty of malpractice.

Our medical department is entirely divorced from politics. Governor Lowden's ideas are being carried out in this respect. I do not know today the political faith of the two doctors who are at present doing our work.

We had a recent case in which an applicant for compensation was sent to Chicago for examination. Our doctors reported that he had traumatic neurosis and that, while he is now totally disabled, they believed that a few weeks' treatment would place him on the road to recovery. Through the cooperation of the employer we are having this man brought to Chicago for treatment and hope and expect to be able to restore him to industry. The assistance of a medical department in such cases is of great value. In fact, the work could not be successfully done without it.

We feel very strongly about the reconstruction of injured workmen. I hope that you will use all the influence that you can bring to bear in urging that whatever is done for the retraining of injured soldiers will be done for the retraining of men injured in industry. It is very probable in this war that we shall have no greater casualties than occur at the same time in industry, but we are so accustomed to industrial accidents that they do not make the impression on us that war casualties do. I hope that all of you will do everything in your power to see that the facilities provided for the reconstruction of injured soldiers shall be available for the reconstruction of injured workmen.

Abortive Treatment of Acute Articular Rheumatism.—According to an abstract in the *Correspondenz-Blatt*, A. Edelmann reported in the *Münchener medizinische Wochenschrift*, 1917, No. 51, that he has been successful in aborting acute febrile articular rheumatism by enhancing the action of the salicylates by inducing, as a preliminary, hyperemia in the affected joints. The means with which he induced this focal hyperemia was by parenteral injection of milk. Müller and others have called attention to the hyperemia with transudation which is induced at points of lessened resistance by heterovaccine therapy and by parenteral injection of milk. Edelmann found that then when the salicylates were administered they were attracted likewise to these points, and their action was thus materially enhanced and the acute rheumatism aborted. In a group of forty-six cases, a heart defect developed only in two, and pericarditis did not develop once in a group of seventy cases.

SYSTEMIC MANIFESTATIONS OF CHRONIC NASAL SINUS INFECTION IN CHILDHOOD *

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The part that acute and chronic respiratory infection plays in the immediate health and welfare of the infant and the child has been generally appreciated in the medical profession. Clinical experience has taught that the tonsils and adenoids are to be regarded as the primary loci of infecting micro-organisms, and there have grown up terms such as the tonsillar or rheumatic syndrome, and the like. It has been understood that from these primary loci infection travels either by continuity or by invasion into the body itself, and that other more distant affections are now regarded, if not directly caused by these primary troubles, as at least standing in close etiologic connection with them. However, a certain note of dissatisfaction is unmistakable, especially as evidenced in the discussion held in this section two years ago as to the possibility of overemphasizing the importance of these locations. This dissatisfaction is based in part on the fact that removal of the tonsils and adenoids did not yield the expected cure in a certain number of cases. The question is then opened as to other possible nests of infection in the nasopharyngeal or oral tracts, and while the teeth come into consideration as one of the favorite sites whereby germs may enter the body, it would seem that in early childhood at least this region plays a minor rôle in such invasions. So the problem would seem to have remained unsolved.

DISCOVERY OF NASAL SINUS AS SOURCE OF INFECTION

In the course of clinical investigations made in a case of chronic deforming arthritis, which is either a subacute stage or a subacute type of the disease to which Still's name is given, it was observed that removal of the tonsils and adenoids and treatment of the teeth did not control the progress of the disease. My conviction was that with the irregular, even if slight, temperature and with the persisting tenderness of the joints, infection must still be present. As all other possible avenues of entrance of the etiologic agent or toxin into the body, except the nose, seemed to have been eliminated, the possibility that the nasal tract itself might be at fault was considered. Bearing in mind the commonness of infection of the accessory sinuses in adults, the head of the department of nose and throat diseases directed investigations toward that end at my suggestion.

The first two investigations, including intranasal puncture of the antrums following roentgen-ray examination, yielded only negative reports, in spite of which further investigations were urged. These resulted in a more radical opening of the antromeatal wall and the finding of streptococci, whose exact type, however, was not determined, in the curettings of spongy granulation tissue present in the antrums. Vigorous treatment of this assumed focus of infection was followed with a gradual but distinct subsidence of the clinical manifestations, after which, with appropriate orthopedic treatment, the child was restored to a condition as near normal as might be expected. The progress of the distressing disease was absolutely arrested and there remained only certain residual deformities which were still present at the last examination, eighteen months after the patient was first seen, while the pain on movement, a prominent feature in the early stages of the disease, was entirely absent.

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* From the Department of Pediatrics, College of Medicine, State University of Iowa.

* Read before the Section on Diseases of Children at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

INADEQUATE ATTENTION PAID TO THE DISEASE

Examination of the medical literature reveals but little regarding the accessory sinus disease in childhood. Barthez and Rilliet[1] state that they will not treat of the simple snuffles so benign that parents do not need to bring their children to the hospital. Kohts[2] makes the first adequate mention of the subject, referring to the periostitis and the relationship of tooth infection, and to certain of such curious things as the finding of parasites in the frontal sinus. Onodi,[3] besides his work on the anatomy of the sinuses of infants, has collected fifty-three cases of acute sinus infection, some of marked severity, from the literature. In his article, instances of eight cases in the new-born were given. Hubbard[4] has shown the connection between the intense nasal discharge of scarlet fever and nasal sinus infection. A similar involvement has shown this connection in diphtheria. A report by Skillern[5] and other isolated reports have discussed this subject with further reference to acute disease. Oppenheimer[6] believes the disease is as common in children as in adults. Phelps[7] believes that, with careful study of certain infections, chronic sinus involvement might often be found. Other articles emphasizing the specialist's point of view have also appeared. From the small number of articles and the fact that the subject finds little or no mention in the modern pediatric textbooks, it would seem fair to believe that the chronic condition is either very uncommon or that its existence is not frequently appreciated.

RESULTS OF CLINICAL EXAMINATIONS

With our attention, then, called to accessory nasal sinus infection as a possible etiologic factor in disease, routine observations were made by means of the roentgen ray, by puncture, nasal endoscope, and later by actual exploration, because of the fact that the roentgen ray often revealed no diseased area where the latter tests were positive; for it is well known that in certain instances, even when a considerable amount of pus is present, the roentgen examination may be negative. It was found that a surprisingly large number of young individuals had demonstrable pathology in these regions.[8] Simultaneously, those patients admitted to the department of pediatrics who gave evidence of focal infection were examined and it was possible to establish an exclusive or partial association with sinuitis in a number of instances. The closest, exclusively causal relationship was found in two other cases of infectious arthritis. In one of these, which was progressing rapidly with a regular fever, with pain on the slightest motion and marked deformity, including destruction of the joint surface, the first definite relief, after the tonsils and adenoids had been removed, was found in radical surgical intervention in the region of the sinuses.

If we refer to the daily notes taken and allow for the possible prejudice in the eye of the observer, there would seem to be no doubt, from the patient's own testimony and from the definite diminution of pain on passive motion, that almost immediate relief was obtained. The irrigation and the suction daily applied in the nose and throat department might have been regarded as unpleasant. In this and in one other case, these measures were even asked for by the patients themselves, when there were lesser returns of the symptoms in the joints. In these two instances the disease, while arrested, has not been definitely cured and the cause for this will be hinted at later.

Another patient with the same joint infection was discharged from the hospital, as no focal infection had been found. On his return one year later, the disease was found progressing definitely, and in the light of these communications, an operative examination of the sinuses will be made.

One striking example showed most clearly how infection of the sinuses might play a partially exciting rôle in disease.

A boy, aged 4½ years, in a fair state of nutrition was found to have a typical case of cyclic vomiting. Believing that the attacks of vomiting are aroused in by far the highest percentage of instances by respiratory infection led me to urge a topical examination of the nose and throat. Enlarged tonsils and infected adenoids were diagnosed, whereas sinus disease was only suspected by the aural surgeon, although it was my conviction that this trouble was present to a marked degree. For the sake of completeness, the antrums were punctured immediately after the removal of adenoids and tonsils, and pus was found on both sides. A more extensive antral operation, however, was not done at this time. The patient's condition was definitely improved, but an occasional attack of fever, with depression, malaise and digestive disturbance, has since been reported. The purulent nasal discharge has persisted.

Similarly, I have record of an instance in which the removal of the tonsils and adenoids brought out clearly the latent sinus trouble, as there is now a marked purulent nasal discharge with sneezing. Another patient, having repeated attacks showing unexplained high temperature and cyclic vomiting, was found to have a marked pansinuitis. Surgical treatment of the sinuses and the removal of the adenoids produced an almost critical cure. In this instance, of course, there is no definite proof that the sinuses were the sole cause of the trouble. One patient with asthma after surgical treatment of the infected ethmoidal cells has been free from attacks for nearly a year.

It was our fortune to observe in this clinic in the past three years a series of six most unusual cases[9] indicating a poisoning of the sensory or trophic nerves and leading to changes in the cornea, to painless dropping out of the teeth, the most intense peripheral pruritis, to weakness and muscular wasting, and, in two cases, to death. There is some evidence to indicate that this peculiar trouble may be due to nasal diphtheria of a chronic type. After seeing two such cases resist all treatment directed toward improving nutrition and end fatally, we decided in the next instance further to investigate the cause of the nasal discharge present. The nasal sinuses were found to be definitely infected. Surgical intervention was resorted to, routine irrigations were practiced, and within a week, the youngster, whose condition had hitherto baffled us, improved; and in a month or so, he was able to leave the hospital in good condition. Other disorders brought into more or less close association with sinus infection were chronic cough, nephritis (and there is some evidence to suggest that the chronicity of the renal process may be due to sinus infection), pyelitis and diphtheria organisms in carriers.

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[1] Barthez, A. C. E., and Rilliet, F.: Traité clinique et pratique des maladies des enfants, Paris, 1853; German Edition, Leipzig, 1844, **1**, 138.

[2] Kohts, W. E. O.: Handbuch der Kinderkrankheiten (Gerhardt), Tübingen, 1878, **3**, Part 2, p. 27.

[3] Onodi, A.: Jahrb. f. Kinderh., 1915, **31**, 159; abstr., The Journal A. M. A., March 27, 1915, p. 1113.

[4] Hubbard, Thomas: Accessory Sinus Suppuration in Scarlatina, Am. Jour. Dis. Child., July, 1911, p. 11.

[5] Skillern, R. H.: Sinusitis in Infants, The Journal A. M. A., Sept. 15, 1917, p. 895.

[6] Oppenheimer, S.: Am. Jour. Obst., 1913, **67**, 397.

[7] Phelps, K. A.: New York Med. Jour., 1917, **106**, 550.

[8] Fourteen per cent. of all children recently examined in the Department of Otology and Laryngology of the State University of Iowa. Personal communication of Dr. L. W. Dean.

[9] Byfield, A. H.: A Series of Trophoneuroses Probably Due to Infection, to be published.

ETIOLOGY OF INFECTION

The series of routine examinations made in the nose and throat department showing a high percentage of infected sinuses and the brief mention made of cases showing that in certain instances medical phenomena may be produced, requires certain discussion as to the etiology of respiratory infection in general. It is probably well understood by all that the germs which form part of our environment obtain access to the open tracts of the body within a very short time after birth. The type of germ and the location are probably determined by certain more or less accidental factors, among which might be mentioned climate; for there is no doubt that catarrhal troubles are more common in certain regions than in others. It is well known, for example, that the Pacific coast is remarkably healthful in this respect. The source of the germ is probably either in the personal environment or it may be introduced into the system accidentally by the food or from the ground.

The first of these sources, in my estimation, plays a part not sufficiently emphasized, in that there seems to exist "catarrhal families." I recall one family in which in the last two years four members have had severe respiratory infection, three having sinus involvement. Just how significant this is, further observation only can tell. This, of course, brings up the theory of the hypothetic elective power of germs, which, while interesting, is far from being proved as existing.

The child's constitution or power of resistance is also a variant in this struggle for survival between parasite and host, and the question as to the relationship of these two is neatly brought out in a conversation reported between a pediatrician and a nose and throat specialist. A child with a chronic nasal discharge was referred by the former to the latter for treatment, and the child was returned with a statement that if the pediatrician would build up the child's resistance, the infection would cease. The pediatrician, in turn, retorted that if it were possible to control the nasal discharge, the child's bodily condition would be improved. The situation was not greatly clarified by the consultation.

Exactly how the diet, the atmosphere and the temperature of the home (especially in winter) influence respiratory infection is not definitely known. That these are important factors, there is no doubt. These things, and other remote conditions causing reflex congestion of the nasal mucous membrane, undoubtedly interfere with drainage of the accessory sinuses of the nose and therefore may tend to prolong or aggravate a condition already existing. The age of the patient plays only a slight determining part in the trouble, sinus infection having been noted in the earliest weeks of life. As might be expected, those organisms that find their habitat in the nares and pharynx will be the infecting agents in sinus trouble. Further work along this line is necessary.

The pathologic changes in the chronic subacute types of this disease seem to be due, not so much to the formation of pus as to a submucous involvement with or without periostitis and to polyp formation. Pus, however, may be present and be recognized either by puncture or by the roentgen ray.

The question arises as to whether there are symptoms or signs pathognomonic or even indicative of the disease. As a result of the experience in this clinic, I have been accustomed to regard the existence of a persisting mucopurulent nasal discharge, especially when associated with frequent sneezing attacks, headache, depression, as indicating the need of further investigation in this direction. If these troubles are present after removal of the tonsils and the adenoids, one may be quite sure of their diagnostic significance. In older children, postnasal mucopurulent droppings are also seen, but it must be borne in mind that chronic adenoiditis may also produce this sign. The aggravation of symptoms and signs by cold and damp weather is also worthy of note. We may, indeed, overlook the presence of sinus disease in summer weather. Children with sinus infection, or at least those we have seen in our neighborhood, present a picture somewhat different from the so-called adenoid facies. In the former, there would seem to be a more distinct look of depression than in the latter. The diagnosis is finally made by a topical examination and the roentgen ray, but it must be borne in mind that because of the latency of the pathologic process the presence of the disease may be overlooked unless a radical exploration is made.

TREATMENT

In discussing the treatment, I come to the most difficult and unsatisfactory part of my topic. The pediatrician is often conservative when it comes to surgical intervention, whereas the consultant may tend to see only the operative aspect of the disease. I should like to defer the expression of a definite opinion in the matter, except to say that drainage and clearing out of infected areas must certainly be practiced after other more conservative methods have been tried and found incapable of controlling systemic manifestations. Sinus infections are often notoriously resistant to any method of treatment, and this must be borne in mind in prognosis. One possible advantage of energetic intervention, however, might lie in the fact that a trouble which tends to be prolonged throughout a lifetime may be better controlled in childhood than in later years. It is our feeling that when asthma is due to nasal infection, usually of the ethmoids, surgical intervention is far more likely to cure or produce at least greater relief in childhood than in adults.

Nonsurgical treatment brings us face to face with the problem of combating chronic infection in general—a subject that is beginning to occupy the attention of the present-day medical men. We hear of nonspecific protein injections and we have heard of vaccines. In the end, we may have to admit that the persistence of infection is merely the index of the degree of the individual's ability to hold his own in the struggle for existence. It goes without saying that in such cases as have been discussed, a control of the factors increasing nasal irritation and congestion must be attempted.

CONCLUSIONS

It would seem, then, that the following conclusions are justified:

1. Infection of the accessory nasal sinuses is greater than has hitherto been commonly suspected.
2. The possibility of this infection as a source of general bodily involvement deserves more attention. In a series of cases including chronic digestive disturbances, persistent cough, occult temperature, poor general health, asthma, infectious deforming arthritis and cyclic vomiting, sinuitis has been observed, and a definite relationship between the infection and certain metastatic processes has been established.
3. Symptoms, such as chronic purulent nasal discharge (especially in winter), sneezing, headache, depression and irritability suggest the possibility of an infection of this region, provided that other etiologic factors have been excluded.
4. The diagnosis may be made by the roentgen ray, but exploratory puncture or even curetting may be necessary.
5. The treatment should be conservative and expectant unless the trouble persists and continues to affect unfavorably the health of the patient. In the light of our present knowledge, surgery is then indicated.

ABSTRACT OF DISCUSSION

Dr. R. U. Andrews, Mankato, Minn.: This very important paper brings out a few things we have undoubtedly overlooked. About a month ago I saw a child whose tonsils and adenoids had been removed, but the child did not improve. She had a profuse, purulent discharge from the nose. I had a specialist examine the child, and he found diseased ethmoid cells on both sides. These were operated on and the child recovered promptly. Unfortunately, nose and throat work is taken up by many who should not do it. I believe the greatest crimes in surgery today are committed in this work. The nose and throat surgery should be turned over to trained specialists. I recently saw a case in which the tonsils and adenoids had been removed, and in which a series of infections developed that were really quite serious. A part of the tonsil was left, producing a focus of infection and causing a great deal of trouble.

Dr. Henry J. Gerstenberger, Cleveland: Very recently a child came to our dispensary with a history of a mucopurulent discharge from the nose; when the child was bent forward a thin discharge poured out. The child also had choking spells. When I saw it the child had palsy of the soft palate, and when tipped forward a thin, seropurulent fluid escaped. My impression was that it must have come from the antrum. It was the first case I had seen, and the first time I had realized the possibility of an infection of the sinuses in infants. I had believed, with others, that they were so small in infants that infection could not occur. The Wassermann test was negative, and there was no history of diphtheria. I should like to ask Dr. Byfield if any of his cases have or have not shown palsy of the soft palate.

Dr. John Zahorsky, St. Louis: Many babies between two and five years of age whose adenoids are removed, have a purulent rhinitis as a sequel. This has followed in so many cases that I have been trying to find some explanation—whether the purulent rhinitis was a previous infection of the sinus, and the adenoid trouble was secondary, or whether the operation had something to do with infection of the sinus, or whether the taking out of the adenoid tissue interfered with some absorptive system.

Dr. A. H. Byfield, Iowa City, Iowa: In presenting this paper I desire simply to call the attention of the members of the section to the existence of sinus disease in order that they may make more careful investigations in the future with possible relief to the patient. In regard to Dr. Gerstenberger's question, I will say that I have not seen any cases resembling the one he described. I have had the same experience in a number of cases as has had Dr. Zahorsky, and in the light of my present experience I would say that in these cases sinus disease had been latent or unrecognized. Removal of the tonsils permitting freer drainage then brought the unrecognized trouble into prominence. It is also theoretically possible that removal of the tonsils caused sinus infection, but I do not think this to be likely. Other investigations will be necessary to clear up that point.

Dr. Paul Armand-Delille, Paris, France: In France, in various institutions where I have been, they try to dissipate sinus trouble, especially in cases complicating measles, etc., by regularly at the beginning dropping into the nose eucalyptus and other oils. When it is done early these complications are lessened.

SOUNDS HEARD IN THE AUDITORY METHOD OF MEASURING THE BLOOD PRESSURE

THEIR MECHANISM AND SIGNIFICANCE*

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and
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The working out of the main physical mechanism underlying the arm band method of measuring blood pressure by Luckhardt and Brooks[1] paved an easy way to the understanding of the sounds heard in the auditory method of measuring blood pressure. Brooks and Luckhardt also prepared a physical model which gave sounds somewhat similar to those heard from a pulsating, suitably compressed blood vessel. They described the mechanism of the sounds produced in experiments on this model, and suggested that the sounds heard in the auditory clinical method of blood pressure measurement might be produced in the same way as those heard on the model.

Since that time work has been carried on in the clinic with the purpose of gathering new and more accurate data concerning the sounds actually to be heard in clinical practice from the compressed artery under the arm band, and to see if the character of the sounds permits the satisfactory analysis and explanation according to the physical laws as described in the work by Brooks and Luckhardt referred to above.

It has been found that the sounds heard are not the same as those described by Korotkow and others, but there are a great many phases of sounds that have not heretofore been described. It is the main purpose of the present work to examine and describe what is to be heard from the arm during the auditory blood pressure measurement, and as far as possible to offer a satisfactory explanation of the mechanism of the production of these sounds.

The plan of study consisted of making observations in a large number of normal as well as pathologic cases and of recording accurately all sounds to be heard in each case. This plan has been carried out, the work extending over a period of more than two years.

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* From the laboratory of physiology, Ohio State University, College of Medicine.

* Read before the Section on Pharmacology and Therapeutics at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

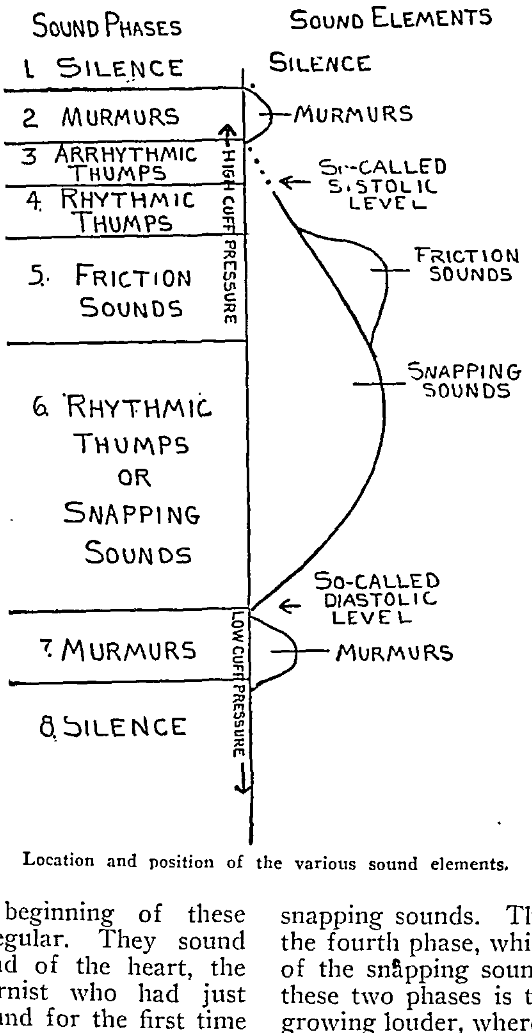
[1] Brooks, Clyde, and Luckhardt, A. B.: The Chief Physical Mechanism Concerned in Clinical Methods of Measurement of Blood Pressure, Am. Jour. Physiol., 1916, **40**, 49.

PHASES OF SOUNDS

In the normal adult, on raising the cuff pressure to a high level and allowing it to fall gradually, the following phases of sounds are heard:

1. *Silence.*—This may be called the upper phase of silence. This extends from the second phase which is just below it, on up to any point higher.

2. *Murmurs.*—This may be called the upper phase of murmurs. These murmurs occur at the rather narrow area just before the third phase begins. The murmurs are soft and they remind one of swirling fluid. They are short in duration, and they occur at systole. In the great majority of cases these murmurs are barely distinct enough to be heard, but in some cases they are quite easily heard. In other cases they are not audible. These murmurs when heard extend over a very narrow limit, usually not more than 5 or 10 mm. in height. They seem to be more easily heard on patients with slim, soft arms, such as a child or a young woman whose arm is not very muscular.



Location and position of the various sound elements.

3. *Arrhythmic or Desultory Snapping Sounds or "Thumps."*—These sounds occur at about every third or fourth systole. They occur singly, in pairs, or even in threes, and each one corresponds with a systole. These groups occur at about the end of inspiration, or at the beginning of expiration. The sounds are distinct, smart, snapping sounds or thumps, but at this stage they are not loud, though they can be easily heard. This phase is the beginning of that kind of sounds which are heard by every one on taking blood pressure by the auditory method. The only difference between this and the fourth phase is in the irregularity of the sounds. If the observer hears any sounds at all he will hear snapping sounds. Therefore, they are familiar to all clinicians. However, most observers have overlooked the beginning of these sounds when they are not regular. They sound something like the second sound of the heart, the "dup" sound, or as one internist who had just heard the irregular snapping sound for the first time said, "They remind one of the sound made by a sick cat in attempting to vomit." The snapping of the cat's diaphragm makes a sound not unlike these arterial sounds. They extend over a very narrow range of blood pressure, and for that reason are easily overlooked. These irregular snapping sounds can be heard in every case when the adjustment is suitably made. The line of demarcation between this phase and the next one below it is sharply defined.

4. *The Phase of Regular Rhythmic Snapping Sounds.*—These "thumps" are smart and distinct, and they grow louder as the cuff pressure is lowered. They are regular and they occur synchronously with systole. As the pressure in the cuff is lowered they continue to grow louder, and there gradually appears engrafted on them an added character which constitutes the next phase.

5. *The Phase of Friction Sounds or "Thump-sh-sh."*—This phase begins with a barely preceptible friction sound, "sh-sh," which is engrafted on the snapping sound; joined right on it and following it immediately, without any intermission, it sounds like a single sound. Close attention, however, reveals the dual character of the sound. The friction sound has a sharp, dragging character. It sounds like a friction rub. The double character of this sound may be imitated by thumping the fist down on the knee, and the instant the fist strikes the knee dragging the fist along on the knee for a short distance. This produces a thump when the fist strikes the knee, and immediately there follows a rub due to drawing the fist along over the knee. "Thump-sh-sh" is the nearest we can express this sound on paper. This fifth phase begins with the friction element of the dual sound, delicate and barely perceptible, but growing louder rapidly with further lowering of the cuff pressure. So much is this the case that in many instances the friction element soon becomes louder than the snapping sound so that it becomes difficult to note the "thump" which marks the beginning of the dual sound. This friction sound often becomes loud enough to resemble the Duroziez sound except that it is not double. After the friction element reaches the maximum it rapidly wanes on further lowering of the cuff pressure. By gradually shading off, it disappears, leaving the snapping sound alone once more. After all the friction element has died out this marks the end of the fifth phase and the beginning of the sixth.

6. *The Phase of Regular Snapping Sounds.*—This may be called the lower phase of snapping sounds. The sounds are similar to those in the fourth phase, which may be called the upper phase of the snapping sounds. The only real difference in these two phases is that in the upper the sounds are growing louder, whereas in the lower they are growing fainter, as the cuff pressure is lowered. When finally the snapping sounds disappear this marks the end of the sixth phase and the beginning of the seventh phase.

7. *Murmurs.*—This may be called the lower phase of murmurs. These murmurs are much more constant and distinct than those of the upper phase of murmurs, or the second phase. They are soft and sound like some of the heart murmurs. They are heard only within a narrow limit of cuff pressure, and soon die out as the cuff pressure is gradually lowered. When these murmurs cease, it marks the end of the seventh phase and the beginning of the eighth phase.

8. *Silence.*—The lower phase of silence.

SOUND ELEMENTS CONCERNED IN THE FORMATION OF THE VARIOUS PHASES

It will be noticed that all the various sound phases described above are made up of three fundamental elements, namely: (1) snapping element, (2) friction element, and (3) murmur. Silence, or absence of sound, need not be considered as an element here for its mechanism is well known. These elements run a rather similar course; that is, they begin faintly, grow stronger, reach a maximum, and then fade out gradually as the cuff pressure is gradually lowered. Beginning at a high level where there is silence and gradually lowering the cuff pressure, one encounters first the upper phase of murmurs. This narrow phase is soon passed, and the murmurs cease. After this comes the beginning of the snapping sounds. These are desultory at first, but become more frequent and finally regular, one for each systole. They also grow more distinct. After a still further lowering of cuff pressure they reach a maximum, after which they gradually fade and finally cease. The whole course of this snapping element is over a large area of pressure. It is the largest and most important element in the sounds of the artery.

The element of friction sound also begins faintly, grows louder, reaches a maximum, and then fades as the cuff pressure is further lowered. However, its upper limit, or level of beginning, is always lower than that of the upper limit of the snapping sounds. Also its lower limit, where it fades completely away, is not very far below the point of beginning. That is, it covers a rather short area from beginning to end. Therefore, it is engrafted on the upper area of the snapping sound, which extends well above its upper limit and far below its lower limit.

The lower element of murmurs is located below the lower limit of the element of snapping sounds. This element of murmur is short in extent from top to bottom.

The accompanying diagram will show the location and position of these various sound elements.

THE MECHANISM OF THE PRODUCTION OF SOUNDS

Some of the phases of sound described in the foregoing may be accounted for quite satisfactorily, while others must for a while longer remain in doubt. The knowledge of the behavior of the artery during compression by the cuff affords an easy and satisfactory explanation of many of these sounds. Furthermore, such knowledge enables us to point out other sounds heretofore unnoticed and to offer an explanation of their mechanism. It was shown by Brooks and Luckhardt that an artery, during complete suppression of the arterial pulse by high cuff pressure, does not open at all, even at the highest point of systole. This occurs during the upper phase of silence. The artery remains throughout completely flattened, with no blood moving through it; but as the cuff pressure is gradually lowered, the level is reached where the segment of artery that is under the cuff opens with wedge shaped spaces at each end and with apple seed shaped spaces at the corners of the flattened tube. Even at the crest of systole the arterial segment is never entirely penetrated by the pulse pressure. But the blood rushes down into these wedge shaped and apple seed shaped openings just as they suddenly enlarge at systole. These blood currents most probably produce the indistinct and often unnoticed murmurs.

As the cuff pressure is still further lowered, the wedge shaped areas and the apple seed shaped areas increase in their penetration until at the crest of systole they break through the occluding pressure of the cuff. The result is the beginning of snapping sounds. Just as soon as a systolic pulse wave breaks through and opens the artery, there is a "thump" or snapping sound. The first of these are irregular or desultory in rhythm. That is, they occur in single thumps or in pairs or, with lower cuff pressure, in threes. Only the highest systolic waves, which occur at the end of inspiration or the beginning of expiration, are strong enough to break through. So at each respiratory rise in blood pressure there break through one or two systolic pulsations which produce a corresponding "thump." This accounts in a very satisfactory way for the irregular rhythm of the thumps in the beginning. As to the mechanism of the production of these sounds there is still uncertainty. Brooks and Luckhardt suggested, from the results obtained from the physical model, that they are due either to the thumping together of the two ends of the divided column of blood, or to the snapping together of the walls of the artery. The snapping open and sudden tension of the vessel walls might also be considered as a possibility. Of course, when the cuff is first applied to the arm and is gradually inflated, the first result is to occlude the venous outflow. This results in filling the veins. As the pressure is gradually raised in the cuff, the venous pressure rises with the cuff pressure. So when the arterial pressure is exceeded by the cuff pressure and when enough excess is added to compress the artery itself and completely suppress the pulse, then the pressure in the arm vessels (arteries, capillaries and veins) distal to the cuff is the same in all parts and equal to the systolic pressure of the artery just above the cuff. Now when the cuff pressure is lowered until the pulse again begins to break through at the crest of the highest systoles, when it does go through it meets the column of blood in the distal end of the arterial segment. No doubt these two ends of the divided column of blood strike together with some force. But at the same time there is a sudden outward fling or snap of the arterial walls. Also just afterward there is a sudden closing together of the arterial walls. It is to be remembered, furthermore, that thus far there is not yet any forward movement of the blood through the arteries. These are various possibilities for the production of the snapping sounds.

The next phase where the thumps become rather rapidly stronger and wholly regular, occurring at each systole, is explainable on the hypothesis that as the cuff pressure is lowered it reaches the level where all systoles break through. As soon as this is the case there are regular rhythmic snapping sounds or thumps, to be heard just below the arm band. The same analysis of the mode of production of the sound given above will be applicable here.

The mechanism of the production of the friction sound is plain. Its onset is marked by the actual beginning of movement of blood through the arteries. The arterial segment is flattened out and opens only partially. The blood, therefore, has to pass through a narrow slitlike opening, producing a friction or nozzle sound as it squirts through. As the cuff pressure is further lowered this flat nozzle is allowed to open a little wider and for a longer time, permitting more blood to squirt through. The result is a more pronounced and a lengthened friction or nozzle sound.

Indeed, it becomes in many cases so prominent that it overshadows the thump sound so that this element is frequently unobserved. The mechanism of the production of the friction or nozzle element is thus satisfactorily explained. The fading of the friction sound on further lowering of the cuff pressure is due to the promptness and completeness with which the arterial segment opens when the systolic pulse wave strikes it, and closes again when the systolic wave passes. There is no appreciable time when the artery is partially flattened with blood squirting through it. So the friction element of sound is lost, leaving only the snapping sound element. This gives rise to the sixth phase, or the phase of regular snapping sounds. The mechanism of the production of these sounds is the same as that of the fourth phase, or the upper phase of rhythmic thumps. The cuff pressure is lower and the artery is open during a longer period. The blood column is divided by the complete flattening and closure of the segment of artery under the cuff. Whereas in the fourth phase the artery opens only during a short portion of the time during each systole, that is, while the pressure in the artery is high enough to overcome the pressure in the cuff, in the sixth phase, the cuff pressure being lower, the artery remains open for a longer time, in fact, closing only when, during diastole, the blood pressure is lower than the cuff pressure. The snapping sound heard in the sixth phase is the same in character as that heard in the fourth phase. In the fifth phase it is the same snapping sound plus the friction sound which is added to it.

The cessation of the snapping sound is brought on by the further lowering of cuff pressure which results in the failure of the artery to close completely even at the lowest ebb of diastole. Here the cuff pressure is not strong enough to overcome the blood pressure plus the arterial resistance. This results in the failure of the arterial segment, which is under the cuff, to be collapsed, and also the failure of the artery to flatten results in the failure of the division of the column of blood in the artery. This results in the failure of the snapping sounds.

During diastole, however, when the pressure in the cuff is at the right level, the pressure within the artery plus arterial resistance is just about balanced by the cuff pressure; there results a sudden diminution in the caliber of the artery during diastole, and a sudden distention during systole. This is also accompanied by the increase and decrease in the size of the lower end of the arterial segment corresponding to the upper wedge shaped end of the arterial segment described above. Also there is a phase where at diastole the arterial segment under the cuff is partly flattened, but not sufficiently to cut off the blood flow or to cause the nozzle action, which produces the friction sounds. These alterations in size and shape of the cuff arterial segment cause vortices and other irregularities in the blood stream, which produce the murmurs heard in the seventh phase.

The phase of silence which results from still further lowering the cuff pressure is due to the fact that when the cuff pressure is insufficient to overcome the arterial pressure plus the arterial resistance, no impression is made on the artery, that is, there is no great change in caliber or shape of the artery on account of the cuff pressure.

SIGNIFICANCE OF THE ARTERIAL SOUNDS

If these are the sounds which may be heard and the mechanisms by which they are produced, what is the criterion point which corresponds to systolic pressure? And what criterion point corresponds to diastolic pressure?

Unfortunately it is not yet possible to select a sound phase which will correspond to the true systolic, or one which will correspond with the true diastolic blood pressure. The reason for this lies in the fact that *the arterial pressure plus the arterial resistance are two factors that are inseparable by present methods of blood pressure measurements.* Therefore, it is not yet practicable to obtain the true systolic or the true diastolic blood pressures. Nevertheless we can measure the point where the cuff pressure just balances the systolic pressure plus the arterial resistance, and also we can measure the point where it just balances the diastolic pressure plus the arterial resistance. These two points can be located by the sounds and can be of great clinical use if their true significance is kept in mind.

These two points are located as follows:

The point where regular snapping sounds are first heard, or the beginning of the fourth phase, is the best criterion for the so-called systolic pressure reading. This point is easily recognized, and all clinicians could easily follow this practice. In fact, this is the point now commonly adopted by them. It is not the actual systolic pressure, but it is a definite point and has its clinical significance.

The point where all snapping sounds cease, or the end of the sixth phase, is the best criterion for the so-called diastolic blood pressure reading. Here, again, this is not the true diastolic pressure; but it is a definite point easily located, and if used would have a definite clinical value. Since there is no practicable way to obtain the actual diastolic, this point is the best criterion to use in the place of it. Some have already advocated the adoption of this criterion for the diastolic reading, but there is much disagreement in regard to it.

These two criteria, one for the so-called systolic, the other for the so-called diastolic, are the two most definite and most easily observed that can be found. Furthermore, the sounds are more sharply discernible than the alterations in size of pulse or artery, etc. So the auditory method is superior to the palpatory or sphygmographic methods involved in such as the Uskoff or the Erlanger apparatus.

CONCLUSIONS

The beginning of regular, rhythmic snapping sounds is the best criterion point for use clinically in measuring the so-called systolic blood pressure.

The criterion for measuring the so-called diastolic blood pressure is the lowest point where the snapping sounds are heard, or where they just cease.

The auditory method of measuring blood pressure is more satisfactory than the palpatory or sphygmographic methods by the use of such instruments as the Uskoff or the Erlanger apparatus.

ABSTRACT OF DISCUSSION

Dr. Henry Sewell, Denver: Investigators on this subject fail in one very important matter. If you make a long series of clinical observations by the use of the auscultatory method, you are almost certain to be struck with the fact that the evidences gained by the perception of sound differ according to the physiologic condition of the patient. Take normal people, with the normal conditions of blood pressure, and you will get a most beautiful portrayal of these sounds as the books give them to us. Take a person suffering from so-called blood ptosis, a person in whom the systolic blood pressure reclining may be 120 mm. and in the standing position 100 mm., and, in my experience, in a large percentage of these cases, with the bell of the stethoscope on the artery, after the "pop-pop" of the first phase, maximum blood pressure, the sound soon dies out, and the succeeding phases of the sound are not heard, or heard with such small intensity that it is an agony to listen for it. This lapse of sound is especially frequent in the standing position of the patient. If you change from the bell stethoscope to the Bowles stethoscope you will hear those sounds much better. That weakening of sound phases after the first phase has given me enormous difficulty, because it is in the class of subjects which particularly interest me, and a class of subjects that I believe is vastly more numerous and important than the clinician takes account of; one in which the effect of gravity on the blood is not properly compensated by the heart and vasomotor system. A great many peculiarities are noticed in dealing with morbid cases which greatly puzzle one. For example, in cardiovascular-renal cases the maximal blood pressure may reach, say, 240 mm. of mercury. The sounds may soon die out and not reappear again until the pressure in the mercury column has dropped to, say, 210 mm., from which point the sound phases proceed as usual. It would be easy in such a case to mistake 210 mm. for the maximal pressure. That has been my experience. I hope somebody more competent will criticize me and show me my errors. I came here to get information. This is practical data in which the physiologists do not help us one particle, because they seek to deal with normal people. There is still a deal to be done as to the relations of the respiratory movements with the maximum blood pressure.

With certain pathologic cases, functional and organic, one often sees evidence of periodic waves of blood pressure much longer and deeper than those due to respiration. My maximal blood pressures practically always occur in the phase of expiration, contrary to the findings of some recent observers.

Dr. Arthur D. Hirschfelder, Minneapolis: I was very much interested in this paper and also in Dr. Sewall's remarks. My own experience, which was gained chiefly some years ago when the Korotkov sound method first came out, was somewhat similar to Dr. Sewall's as regards the low blood pressures. We found, when we first began to study blood pressures in Baltimore, that the so-called auscultatory method was very satisfactory with arteries of normal size; but when we got to dealing with small, not well filled arteries, or small arteries in a state of vasoconstriction, somewhat similar to the type of case Dr. Sewell mentioned, there was sometimes a great deal of difficulty in getting the sounds. As Dr. Sewall said, we found that there is in this type of case also a great deal of difficulty in getting satisfactory evidence by any method, frequently even by the method of Erlanger with the graphic method for determining diastolic pressure; it is difficult to feel the maximum oscillation of the artery using the Korotkov method, difficult to record it with the Erlanger apparatus and difficult to get the sound changes with the auscultatory method. One is faced with the choice to find the lesser of the two evils. I believe that when you can get the sounds at all by this method it presents least of the evils in the determination of blood pressure.

I would like to mention one thing:

Last Christmas, in Minneapolis, Erlanger of St. Louis made a very interesting demonstration of a model showing the mechanism of the production of the arterial sounds. He used a very thin walled tube which was alternately filled with water from a reservoir and clamped off. It was kept collapsed until the wave of liquid came through, when it suddenly passed from a state of complete collapse into distention. A sound was heard when the wave passed under that part of the tube which was under the stethoscope. This corresponds to the systolic sound. This occurred only when the artery had been completely collapsed, and not when it was only partially so; and that explained why we do not get the sound through diastole.

Dr. Arno B. Luckhardt, Chicago: I cannot answer Dr. Sewall's question, and I shall not refer to Dr. Hirschfelder's, but the proposition generally was this: Some arbitrary rules had been laid down about the measurement of blood pressure and they did not seem quite logical to us; and since they were based on premises that had no conclusive experimental evidence for their foundation, we decided to work this thing out. The first thing done was to construct a physical pump and have physical arrangements fixed so that we could take one factor at a time and leave the others constant. On this model systolic and diastolic pressures were measured by the arm band cuff method. In the paper just now presented it was pointed out that some factors are quite different in pathologic states from what they would seem to be under physiologic conditions; and one factor emphasized in that paper was the importance of the knowledge of the tension and elasticity and condition of the arterial wall. With the apparatus, such as it is constructed, work will be carried on. This work is an extension of the work to the sounds heard over arteries, with their various forms of resiliency and elasticity, and various forms of thickening, with the hope that light may be thrown on the significance of the criteria for making diastolic and systolic blood pressure measurements and the effect of treatment of blood pressure under various pathologic conditions. This work was begun, first, to show the fallacy of the criteria used in establishing diastolic and systolic pressures in common use; second, to investigate the sounds heard over arteries thoroughly, and, third, to make use of these sounds in pathologic conditions where the character of the arterial wall is of great consequence in drawing conclusions as to the usefulness of the blood pressure measurements.

BOTULISM

A METHOD OF ISOLATING BACILLUS BOTULINUS FROM INFECTED MATERIALS *

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AND
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During recent years we have been recognizing outbreaks of food poisoning caused by the ingestion of canned vegetables and fruits, in which the symptoms of the victims were those of botulinus intoxication. In every case that has come to my knowledge, home-canned products have been the cause. Not only have human beings been poisoned, but domestic fowl and animals have also been affected after eating home-canned food. In many cases there has been coincident intoxication of human beings and domestic fowl or animals, the fowl or animals having been fed remnants of the food which had caused the poisoning of the human beings (Table 1); but in other instances the poisoning of the domestic fowls or animals occurred independently of poisoning of human beings, because they were fed spoiled home-canned vegetables which had been recognized as spoiled and unfit for human consumption (Table 2). The majority of the recognized outbreaks of botulism have occurred on the Pacific Coast, but cases are being discovered in other portions of the United States, and it is probable that the causative factor, *Bacillus botulinus*, is widely distributed throughout the country.

In our investigation of outbreaks of botulism on the Pacific Coast, we have succeeded in establishing the diagnosis in seven cases by the isolation of *B. botulinus* from materials that were collected for examination (Table 3). In our earlier attempts to recover the organism we encountered considerable difficulty, but

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* Aided by a grant from the California State Council of Defense.
* From the Laboratory of Experimental Medicine, Stanford University Medical School

eventually we adapted methods which have proved to be quite satisfactory, and which we hope may be of some assistance to laboratory workers who are called on for the first time to investigate an outbreak of food poisoning of this kind.

In our routine work with *B. botulinus* we have employed only three kinds of culture mediums, glucose-infusion agar and glucose-infusion broth, prepared according to the formula given by van Ermengem[1] and sheep's brain medium, since the identification of this bacillus can more easily be established by the demonstration of its characteristic toxin than by the study of its imperfectly understood cultural reactions in sugars and other mediums. Standard test tubes are filled to a depth of from 3½ to 4 inches of medium, about 10 to 12 c.c., and the broth and brain mediums are covered with liquid petrolatum. The reaction of the mediums should be slightly alkaline to litmus, and sterilization should be accomplished by the fractional method in the Arnold steam sterilizer, heating for twenty minutes on each of three consecutive days.

TABLE 1.—INSTANCES IN WHICH DOMESTIC ANIMALS AND FOWL WERE POISONED BY EATING THE REMNANTS OF HOME-CANNED FOOD WHICH HAD CAUSED THE POISONING OF HUMAN BEINGS

Date	City	Persons		Limber-Neck	Cause of Poisoning
		Ill	Died		
1907	Ontario, Calif.	3	3	12 chickens	Canned pork and beans
1912	Romley, Colo.	7	5	5 burros	Canned beans
1912	North Yakima, Wash. .	6	3	12 chickens	Home-canned asparagus
1913	Hornbrook, Calif.	1	1	50-100 chickens	
1915	Fallbrook, Calif.	5	5	Several chickens, 1 dog*	Home-canned apricots
1915	Hillsboro, Ore.	1	1	50 chickens	Home-canned corn†
1916	San Jose, Calif.	1	1	8 chickens	Home-canned string beans†
1916	Escondido, Calif.	1	...	25 chickens	Home-canned string beans
1917	Seattle.................	3	3	Several chickens	Home-canned asparagus†
1917	Ontario, Ore.	1	1	39 chickens	Home-canned string beans
1918	Madera, Calif.	8	6	30 chickens, 1 turkey	Home-canned apricots†

* The animal was ill but recovered.
† B. botulinus was isolated.

Immediately before the mediums are inoculated they should be boiled for at least twenty minutes. The fluid mediums, broth and brain, are quickly cooled by plunging the tubes into cold tap-water, but the agar is cooled only to from 45 to 47 C., a temperature at which the 2 per cent. agar medium is of sufficient fluidity to permit of thorough admixture with the material with which it is inoculated, and which has proved to be entirely safe when we are dealing with *B. botulinus* or its spores. Immediately after the agar medium is inoculated, it is also plunged into cold tap-water, and left until it has solidified, and the stoppered end of the tube is then sealed with a wax prepared from paraffin, beeswax and zinc oxid to prevent evaporation and shrinkage. All culture tubes are incubated at from 26 to 28 C., the optimum temperature of *B. botulinus*.

The points which we consider essential for the identification of *B. botulinus* are:

1. The demonstration of large, gram-positive bacilli with rounded ends and terminal spores.
2. The occurrence of anaerobic growth of characteristic appearance in glucose-agar cylinders with formation of gas and fragmentation of the medium.
3. The blackening of brain medium.
4. The characteristic growth in glucose-infusion broth, with the production of a virulent toxin which can be demonstrated in filtered broth by the inoculation of susceptible animals, and which is neutralized by specific antitoxic serum prepared by immunizing goats to the toxin of known *B. botulinus*.

The odor of *B. botulinus* cultures is quite characteristic, somewhat like rancid butter or certain kinds of cheese, and is frequently of sufficient strength, even in mixed cultures, to give a clue to the presence of this organism.

We have found that we are able to recover *B. botulinus* from contaminated material with much greater ease and in a much shorter time by fishing the characteristic colonies from a thinly seeded agar cylinder than from deep agar plates that have been incubated in an atmosphere of hydrogen. It is important that the agar cylinders be very thinly seeded in order that there may be room for the typical development of the individual colonies, and sufficient separation of the colonies to allow for observation and for isolation. In practice we have found that one small loop of the suspected material in about 12 c.c. of glucose-agar will give the required dilution, but usually it is advisable to make successive dilutions as in preparing gelatin cultures for plates. In the majority of cases the optimum time for fishing the more favorably appearing colonies is on the third or fourth day; but the tubes should not be discarded if no typical colonies have appeared by that time, as sometimes they do not appear for from six to ten days.

Our method of fishing the colonies is to file and break the tubes about half an inch below the lowest suspected colony, to force out the agar cylinder from above until the colony is just below the broken rim of the tube, to sterilize the exposed surfaces of the medium with a heated platinum wire, and to fish the colony through the sterilized surface. We have found that a dissecting microscope gives sufficient magnification and allows much greater freedom of movement for this procedure than does the ordinary laboratory microscope.

TABLE 2.—INSTANCES IN WHICH ONLY DOMESTIC ANIMALS AND FOWLS WERE POISONED BY EATING DISCARDED, SPOILED HOME-CANNED VEGETABLES

Date	City	Limber-Neck	Cause of Poisoning
	Escondido, Calif.	25 chickens	Home-canned string beans
1914	Escondido, Calif.	80 chickens, 6 turkeys	Home-canned string beans
1915	Madera, Calif.	Several chickens	Home-canned string beans
1915	Santa Ysabel, Calif.	130 chickens, 30 turkeys	Home-canned string beans
1917	Hanford, Calif.	Several chickens	Home-canned corn
1917	Visalia, Calif.	Several chickens	Home-canned corn
1917	San Jacinto, Calif.	58 chickens	Home-canned corn
1917	Berkeley, Calif.	52 chickens	Home-canned string beans
1918	Berkeley, Calif.	12 chickens	Home-canned string beans*
1918	Hollister, Calif.	2 hogs†	Home-canned peas

* B. botulinus was isolated.
† The animals were ill but recovered

The isolated colonies are transplanted to glucose-agar, glucose-broth and brain medium. In glucose-agar, if one has succeeded in obtaining a pure culture, the growth usually becomes visible in from thirty-six to forty-eight hours, and the upper surface of the growth is sharply defined about 1 cm. below the surface of the medium. Gas formation occurs soon after, and by the third day the agar column is usually fragmented. In glucose-broth a diffuse cloudiness appears at about the same time as the growth becomes visible in agar, but within a few days the cloud begins to settle and within a week or ten days the upper portion of the medium is clear and the bacterial growth is seen as a flocculent sediment at the bottom of the tube. The broth is usually allowed to incubate for one month before it is filtered through a diatomaceous filter and tested for the presence of virulent toxin. The growth in brain is quite profuse, and numerous spores are usually formed within a few days. The medium becomes blackened in from ten days to six weeks.

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[1] Van Ermengem, in Kolle and von Wassermann: Handbuch der pathogenen Mikro-organismen, 1912, 4, 921.

Occasionally one is able to obtain an unopened jar or can of home-canned vegetables or fruit in which there is a pure culture of *B. botulinus* and in which there is virulent toxin. Under such circumstances the bacteria can be recovered directly by inoculation of suitable mediums, and the presence of the toxin and the specificity to known antitoxin can be tested in the juice or syrup from the container. Usually, however, the *B. botulinus,* if present in the jar, is associated with other spore-bearing bacteria, usually with *B. subtilis,* and in order to obtain a pure culture it is necessary to inoculate glucose-agar cylinders and fish for the characteristic colonies. But even here the problem of identification is greatly simplified, since the production of toxin is not prevented by the presence of the other bacteria, and its presence may be detected and its type tested by injecting the filtered juice or syrup from the infected container.

TABLE 3.—SOURCES FROM WHICH OUR SIX STRAINS OF THE B. BOTULINUS WERE ISOLATED

Date	City	Cause of Poisoning	Strain	Material from Which B. Botulinus Was Isolated
1915	Hillsboro, Ore.	Home-canned corn	IV	Contents of gizzard of chicken
1916	San Jose, Calif.	Home-canned string beans	III	Contents of crops and gizzards of three chickens
1917	Escondido, Calif. ..	Home-canned string beans	V	Contents of can of beans obtained from cellar
1917	Seattle.............	Home-canned asparagus	VII	Contents of crops and gizzards of seven chickens
1918	Berkeley, Calif.	Home-canned string beans	VIII	Contents of three jars of beans which were obtained from closet, and of gizzards of two chickens
1918	Madera, Calif.	Home-canned apricots	IX	Contents of gizzard of chicken
1918	Hollister, Calif.	Home-canned green peas	X	Feces of two sick hogs

More often, however, the investigation must be made of remnants of the poisonous food that have been discarded, and the problem is much more difficult. Occasionally one may gather fragments of the discarded food from among the garbage, but usually this is not possible since the onset of the symptoms is so delayed that the garbage pail no longer contains the remnants of the food that caused the poisoning. We have examined four separate lots of suspected food that was recovered from garbage several days after the onset of the symptoms of poisoning, but did not succeed in isolating *B. botulinus.* Usually the only hope of recovering the organism lies in bacteriologic examination of the contents of the crops and gizzards of chickens that have died after eating the discarded food, or of the intestinal canal of human beings or of animals that have been poisoned. We have succeeded in recovering four strains of *B. botulinus* from the contents of the crops and gizzards of chickens that died after eating spoiled home-canned foods (thirteen chickens in all, Table 3), one from the feces of two hogs which became ill after eating spoiled home-canned green peas, and one from the intestinal content of a hog which we had experimentally inoculated by feeding. We did not succeed in recovering the organism from the contents of the intestinal tract of the one human victim in which we obtained necropsy before the body was embalmed.

The contents of the crops and gizzards or of the intestinal canal are mixed with sterile physiologic sodium chlorid solution in bottles or in flasks which are large enough to allow of thorough shaking. A portion of the mixture is then removed and heated at 60 C. for an hour, and parallel inoculations of heated and unheated material are made into glucose-agar and glucose-broth. The glucose-agar tubes are inoculated with minute amounts of the material for the reasons already discussed, but the glucose-broth tubes are inoculated with relatively large amounts, from 0.25 to 1 c.c. of the saline suspension.

The glucose-agar cultures are examined for characteristic colonies in from forty-eight to seventy-two hours after inoculation, but, as stated before, the cultures should not be discarded for at least two weeks if they appear to be negative. The presence or absence of gas in these cultures cannot be considered as conclusive evidence for or against the presence or absence of *B. botulinus,* as many other gas-forming bacteria may be present in the culture, or colonies of *B. botulinus* may be insufficiently developed to have caused the splitting of the glucose-agar.

The glucose-broth cultures are allowed to incubate for about one month before they are disturbed. A portion of the broth is then passed through a diatomaceous filter and 1 c.c. is injected subcutaneously into a guinea-pig. If virulent toxin is demonstrated by the death of the animal, a series of inoculations is made to determine the degree of virulence of the toxin, and the specificity and type as tested with specific antitoxic serums. If no virulent toxin can be demonstrated, the medium is discarded; but if there is a toxin, minute portions of the unfiltered portion of the medium are transplanted into glucose-agar, and the characteristic colonies are fished when they appear.

We have occasionally succeeded in obtaining *B. botulinus* in pure culture from glucose-agar cultures that had been inoculated with the original saline mixture; but we have been much more uniformly successful with the glucose-broth cultures that had been incubated for one month. We have never failed to obtain the organism in pure culture from the broth in which a virulent toxin had developed.

Occasionally *B. botulinus* may be recovered from the spleen of a human or animal victim of botulinus poisoning. We did not succeed in obtaining a culture from the spleen of our human case in which we performed necropsy before the body was embalmed, but in one instance (Strain III) we obtained a pure culture from the spleen of a rabbit that had been given intravenous injection of a contaminated broth culture. This method of separation does not appear to be reliable, however, as repeated trials with other strains of *B. botulinus* have always been unsuccessful. The technic of making cultures from the spleen does not differ in any way from that of making routine cultures from tissues at the necropsy table. Portions of the spleen are removed through a seared surface, and inoculated into glucose-agar and glucose-broth culture tubes. We have not found it necessary to grind up the tissue before inoculation, as *B. botulinus,* if present, will soon spread out from the small pieces of tissue. If cultures are obtained, the bacilli are isolated and identified in the manner already described.

INTRARECTAL ADMINISTRATION OF ARSPHENAMIN

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It is not the intention of this paper to discuss the value of arsphenamin when used alone, or its relative value when used in conjunction with other drugs. Its value as an antisyphilitic remedy, especially in the early stages of the disease, is undoubted, and the prompt response obtained from its use to the acute and subacute manifestations are generally gratifying.

As to its mode of administration, the most convenient and accepted method at present is by the intravenous injection. Next to this stands the intramuscular injection. We are each day learning more and more about the untoward effects and even the fatalities that sometimes accompany the former route. Sargent's[1] experience with arsphenamin administered by intravenous injection is not at all encouraging.

We have never attempted the intramuscular injection of arsphenamin or neo-arsphenamin. There are strong objections to it, even when it is carefully prepared in an oily suspension. The chief objection is the pain accompanying the injection, to say nothing of the more intense pain and subsequent swelling, lasting for several days. In addition there is always the danger, especially in obese patients, of a possible abscess formation.

Further, there are few in the medical profession who have not at some time been confronted with the problem of administering arsphenamin or neo-arsphenamin in some patient in whom the intravenous method was almost a practical impossibility, unless a dissection of the vein was resorted to. The latter procedure cannot be very desirable when the injections are to be repeated, as is most often the case. Also, it is well known that arsphenamin and neo-arsphenamin are very irritating to the subcutaneous tissues, even in small quantities, causing painful indurations. When these occur in the elbow, the most preferred site of injection, there is impairment of motion for weeks or months.

Again, it stands to reason that when a toxic drug like arsphenamin, and, to a less extent, neo-arsphenamin, is suddenly thrown into the system by the most direct route, the blood stream, whence absorption in toto is almost immediate, its possible dangers must be reckoned with, when we consider the immediate reaction: fever, headache, dizziness, nausea and vomiting, or the more severe subsequent reactions, such as damage to the eyes, the skin, the liver or kidneys, and even fatal termination. Even when patients are properly prepared, and likewise carefully selected, every physician experiences these untoward effects sooner or later. We had two striking instances in Cases 1 and 4, discussed later, in each of which the patient showed a rather severe reaction after the administration of neo-arsphenamin and arsphenamin, respectively, by intravenous injection, but no bad effects after a number of intrarectal injections. Further, when the drug is quickly absorbed it is eliminated with relative rapidity, so that its curative power lasts only a short time. For this reason, a method in which the arsphenamin is more slowly absorbed, offering a more prolonged and so probably a more effective curative method, is to be preferred. It is for this reason that some therapeutists are inclining to greater use of the intramuscular administration of the drug. This was not the real point, however, in our seeking another method of arsphenamin or neo-arsphenamin administration.

Syphilis is a common disease everywhere, but is especially prevalent in Panama. The number of our routine Wassermann tests on hospital patients averages one-third positive. Further, obesity is very common among our native women after marriage, and it is at this time when many of them contract the disease from their husbands. Hereditary syphilis, too, is common among the children. We were for a time confronted with the problem as to how to administer arsphenamin and neo-arsphenamin in these types of cases, and also in some very anemic, nervous women with small, collapsed veins. We learned that intrarectal arsphenamin had been tried by some French physicians, and, though we could not find the original record, we decided to give this method a trial.

The method we used is very simple. The arsphenamin or neo-arsphenamin is prepared just as in the intravenous method and can be made up with a similar or smaller amount of fluid, from 25 to 50 c.c. for neo-arsphenamin and about 100 c.c. for arsphenamin. The patient is put to bed and the solution is allowed to run in slowly, allowing about ten minutes for the injection. The patients, especially children, were urged to retain it. We preceded the injection by a cleansing enema, and, in the early cases, elevated the buttocks and also the foot of the bed. These steps are unnecessary, though a cleansing enema is a good procedure to adopt and in children the extra precautions are also wise. Injections may be given safely every three days, the full dose for men and women being 0.9 gm. of neo-arsphenamin or 0.6 gm. of arsphenamin, and for children, 0.1 gm. for each 25 pounds of body weight.

At first we checked up our cases by titrated Wassermann tests in ten dilutions, conducted by Dr. Gorton at our laboratory. Out of nine cases worked out by this special titration, five showed a moderate or complete improvement in the Wassermann reaction, and the other four showed little or no change. In the remainder of the cases, numbering about thirty-five, the routine Wassermann test was done. What we were interested in chiefly, however, was clinical improvement in the symptoms, which included skin, bone, joint and glandular lesions, and also improvement in general health.

Our series is, indeed, very small, as most of our patients are charity patients, unable to purchase the needed drug, and the cases for arsphenamin treatment are too numerous to permit the hospital's free administration. At first we treated a small number of patients, whom we used for experimental purposes, and later when we had demonstrated the efficacy of the method to our own satisfaction, we treated patients unfitted for intravenous injection who needed the arsphenamin.

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[1] Sargent, J. C.: Toxicity of the American-Made Arsphenamin (Salvarsan), The Journal A. M. A., March 30, 1918, p. 908.

We do not desire to discuss each case, but some were so striking in their response that they are worthy of individual consideration. In general, we might say that the majority of patients showed improvement from symptoms after from three to five intrarectal injections, even when the Wassermann reaction remained unchanged, often, perhaps, because the patients left too early, either demanding their discharge or being discharged for other reasons.

REPORT OF CASES

Case 1.—R. G., a middle-aged married man, admitted Aug. 21, 1917, complained of a leg ulcer over the left thigh above the knee and a tumefaction at the back of the elbow. He had had the ulcer for about one year and the tumor for several months. He also felt run down in general health. The ulcer was about the size of a silver dollar, chronic in appearance, with a highly indurated margin. The elbow tumefaction was about the size of a walnut and impaired the motion of the elbow to some extent. It was smooth, firm and apparently a gumma. The patient had general glandular enlargement, was anemic and had a ++++ Wassermann reaction.

After four intrarectal injections of French neo-arsphenamin, the ulcer had almost completely filled in, the gumma was reduced to about one-fourth its size, and the patient was feeling much better. He was discharged shortly after, to return for more treatment later, and after several weeks was given an intravenous injection of neo-arsphenamin. Immediately after the injection the patient grew dizzy, had to remain at the hospital for a while, and told us later that at home he developed a chill and a rather high fever and was nauseated. He refused to take any more intravenous injections after his experience with both methods. His last Wassermann test, about two months after his first admission, persisted in full strength, ++++.

Case 2.—A. C., a young married woman, very obese, was admitted, July 10, 1917, with a history of headache and pain extending down her spine and growing worse at night. She had also had twelve abortions. Her Wassermann reaction was +++.

After five intrarectal injections of neo-arsphenamin, her symptoms disappeared and her general health was improved. Her Wassermann reaction was negative. Seen a short time ago, she still reported excellent general health and no abortions since her treatment. We were disappointed in her negative history concerning pregnancy.

Case 3.—J. de C., a young and exceedingly anemic woman, married, was admitted, Feb. 5, 1918, with a history of metrorrhagia and a general run down condition. The following day a curettage was performed, but during the night before the operation, she had had a slight rise of temperature. This grew steadily worse, the temperature climbing and the pulse increasing in rate, until the patient appeared quite sick. On admission she had had a fading eruption which grew marked during the fever. She also developed an outspoken palmar and plantar syphilid. We were inclined to regard the whole picture as one of secondary syphilis, especially in the presence of a ++++ Wassermann reaction; but the extremity of the picture, especially the febrile reaction, from 39 to 41 C. (102.2 to 105.8 F.), and her apathy gave us sufficient anxiety to request a Widal reaction and a blood culture, both of which were negative. The blood was negative for malarial parasites also, and the fever failed to respond to quinin.

After the first intrarectal injection of French neo-arsphenamin, 0.9 gm., the patient showed some improvement and continued to do so after subsequent similar injections. After the fourth injection, the temperature came to and remained at normal, and after a few days the patient was up and about, quite herself again, all the skin manifestations having disappeared completely. The last Wassermann reaction taken about a month after her last injection was negative.

Case 4.—M. de A., a woman, admitted, April 14, 1918, had been married seven months. Three months after marriage, she had had a facial neuralgia and heat flushes, and also some fever and a general eruption. These symptoms had disappeared, to be followed, shortly before admission to the hospital, with sores in the throat and around the vulva and vagina, the latter being associated with agonizing pain, painful micturition and insomnia. Her Wassermann reaction was ++++. Her husband's reaction had been the same. Mucous patches were present on the posterior pharynx, and ulcerated condylomas in the vagina and on the vulva.

The patient was first given an intravenous injection of the Farbwerke-Hoechst brand of arsphenamin, 0.4 gm., after which she was very sick, felt feverish and nauseated, and had an epileptiform convulsion. She begged not to be given any more intravenous injections. After this she was given four intrarectal injections of arsphenamin, 0.6 gm. each time, suffering no reaction. Her lesions disappeared entirely and she felt much improved, being discharged, May 1, 1918, sixteen days after admission, to continue treatment outside the hospital. Her Wassermann reaction at this time was still ++++.

In addition to the patients mentioned, we have had two other patients with persistent relapsing fever that responded to intrarectal injections of neo-arsphenamin, each receiving three or four injections.

Case 5.—P. de A., an extremely obese, middle-aged woman, before admittance to the hospital had had high fever, which failed to respond to quinin by mouth or hypodermically. On admission, she still had fever ranging between 39 and 40 C. (102.2 and 104 F.) and pains in the joints. The blood was negative for malarial parasites and the relapsing fever spirochete, and the Wassermann reaction was negative. The patient's body showed evidence of a mottled, faded eruption, suspiciously suggestive of syphilis. Her temperature fell to normal after intrarectal injections, and she had completely recovered after four injections.

Case 6.—E. G. de V., a young woman, was admitted to the hospital, Feb. 19, 1918, with acute appendicitis. The appendix at operation was found gangrenous, ready to rupture, and the cecum near its base appeared gangrenous. In spite of the fact that there was evidence of a fecal fistula on the fourth day, the wound drained well and seemed to be closing up, with no further evidence of trouble in the abdomen. About a week after the operation, the patient's temperature, which had fallen almost to normal, began to run a four or five day relapsing fever course, with occasionally chilly sensations. This condition showed no improvement with hypodermic injections of quinin or quinin by mouth. The blood on being examined the second time for malaria, revealed no parasites, and was negative for the spirochete of relapsing fever. The patient asserted that she felt very well after her first intrarectal injection of neo-arsphenamin, 0.9 gm., and her temperature remained practically at normal from that time on, though she was given two subsequent injections. She was discharged, March 19, 1918, just one month after operation, feeling very well and with the wound practically closed.

SUMMARY

It is interesting to note that, after the intrarectal injections, not a single patient showed the slightest reaction, whether the Farbwerke-Hoechst brand of arsphenamin or the German or French neo-arsphenamin was used. During these arsphenamin courses we tried to eliminate all other forms of antisyphilitic treatment, and while we can make no detailed statement as to the relative value of these preparations, we have found the results more or less encouraging with all.

We strongly urge the trial of this method on those connected with institutions who can and do give arsphenamin to patients gratis.

CONCLUSIONS

1. The intrarectal administration of arsphenamin is a successful method of treating syphilis and relapsing fever.
2. The untoward effects are practically eliminated by slower absorption.
3. The method requires no special skill in administration, and can be entrusted to a nurse or to the patient himself.
4. The dosage can be increased by this route and given as often as every three days.
5. It is the method of choice in nervous subjects, in obese or very anemic women, and in children.
6. It offers at least the same curative value as the intravenous route.

HAY-FEVER RESORTS IN THE UNITED STATES AND CANADA

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As it has been definitely established that hay-fever is due to the inhalation of pollen,[1] it would appear to be simply a question of eliminating all wind-pollinated plants from certain areas in order to abolish this disease. This has been actually demonstrated in a number of places, which have in this way acquired considerable popularity as hay-fever resorts. All weeds and grasses are scrupulously cut not only by city ordinances, which are strictly enforced, but also through the influence of public opinion, as the visitors are a source of profitable revenue. The freedom from hay-fever in these places is due to the fact that all weeds and grasses with wind-borne pollen[2] are rigidly excluded.

The history of hay-fever resorts, before pollen was discovered to be the cause, forms an interesting example of the unreliability of health measures when not based on scientific principles. A sufferer from hay-fever, in his efforts to find a location in which he will find relief, reaches a location many miles from human habitations and cultivated fields, perhaps in a virgin forest, and his attacks disappear. He pitches his tent, passes his time in fishing and hunting, and returns home convinced that he has at last found the Mekka of hay-fever sufferers. The place is advertised, cottages are built and perhaps even a hotel, and the first year the reputation is sustained—no one has hay-fever.

The next year, the plans are extended. The timber is cut and the land is planted in corn and oats for the stock, and vegetables for the guests. Immediately the seeds of the weeds, the parasites of agriculture, are brought in by the stock, the hay, oats and seeds, and the weeds appear with their millions of noxious wind-borne pollen.

The guests now begin to suspect that the location is not entirely free of hay-fever. The following year the weeds have increased in number and activity, and the pollen abounds in the air. Hay-fever is common, the guests leave in disgust, and the place is abandoned. This history of the rise and fall of hay-fever resorts has repeated itself in almost every part of the country.

The recently established resorts, however, being scientifically based on the exclusion of all weeds, have maintained their reputation and increased in popularity. It is only a question of time, however, when every summer resort will be compelled, in its own interest, to take similar steps for the comfort of hay-fever sufferers. The elimination of hay-fever in towns and cities generally is simply a question of time, this result depending on the thoroughness with which the weeds are destroyed.[3]

It is popularly believed that hay-fever is gradually increasing, and this is supported by the statistics which we have collected from all parts of the country. The cause, however, is not the increase of susceptibility as is usually supposed, but of exposure. It is well known that hay-fever is less frequent in the heart of crowded cities, and many living in the suburbs find relief at their places of business. The reason is that these congested parts of the cities are beyond the potential radius of the hay-fever weeds and grasses of the suburbs and surrounding country.[4]

The true reason is, therefore, that the ease of transportation has enabled thousands to live in the suburbs and surrounding country of all large cities. Most of these localities are sparsely settled, and are surrounded by vacant lots and fields. The latter too frequently are abandoned to ragweed and other hay-fever weeds, even in cases in which a crop has been cultivated at some portion of the year. The air in these places is therefore infested with hay-fever pollens, which find their victims in subjects with low immunity to their protein.

There are a number of places in the United States and Canada in which the meteorological or topographic condition prevents the growth of the plants that cause hay-fever, and which may therefore be termed natural hay-fever resorts. There are several varieties of hay-fever, however, and, accordingly, there are some localities in which one class of hay-fever sufferers find relief but in which others are not benefited. A patient from Illinois, sensitive to the common ragweed (*Ambrosia elatior*) hay-fever only, would find relief in California, where this is not found[5] and a subject in California, sensitive to the sagebrush (*Artemisia*) only, would be relieved in Illinois. This explains the apparent contradiction in regard to many popular hay-fever resorts.

There are some localities, however, in which the natural flora of all hay-fever weeds is extremely low, so that they offer relief to the great majority of hay-fever cases of all forms.[6]

For several years, the American Hay-Fever Prevention Association has been endeavoring to form a reliable list of such localities, so that physicians might be able to direct their hay-fever patients to the nearest sort in their vicinity. In this work, we have received uable assistance from most of the state boards of ealth, from physicians in general and from our Botanical Department.

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[1] Scheppegrell, William: Hay-Fever and Its Prevention, Pub. Health Rep., 1916, **31**, 1907.

[2] Flowers of all kinds, whether wild or cultivated, are practically all insect-pollinated, and, as the pollen is not in the air, they do not cause hay-fever, although some may cause a reaction on direct inhalation.

[3] Scheppegrell, William: The Prevention of Hay-Fever as a National Problem, Jour. Am. Pub. Health Assn., 1918.

[4] Scheppegrell, William: Hay-Fever and Hay-Fever Pollens; Arch. Int. Med., June, 1917, p. 959.

[5] Scheppegrell, William: Hay-Fever: Its Cause and Prevention in the Pacific and Rocky Mountain States, Pub. Health Rep., 1917, **32**, 1135.

[6] Scheppegrell, William: Hay-Fever and Its Relation to One Hundred of the Most Common Plants, Trees and Grasses, Med. Rec., New York, 1917, **92**, 230.

This list of hay-fever resorts will be increased as reliable information is obtained. It is published at this time, in order to be available for the approaching fall hay-fever season which is due in August.

PARTIAL RELIEF

Contrary to the popular belief, altitude is no protection against hay-fever unless this exceeds 6,000 feet. Up to 4,000 feet, the common ragweed (*Ambrosia elatior*) is as common as on the plains. At an altitude over 6,000 feet, however, the ragweed does not thrive, and such localities afford relief to those sensitive to this pollen. Some of the wormwoods (*Artemisia frigida*), however, are found at this altitude, but these are practically confined to the Pacific and Rocky Mountain states.

An island that is kept free of weeds, and has no land nearer than 5 miles, is practically free of hay-fever pollen, and is therefore without hay-fever. Even 1 or 2 miles is ordinarily a sufficient water protection, as the lightest pollen of the hay-fever weeds (ragweeds, 15 microns in diameter) does not traverse more than this distance except in winds of high velocities (20 or more miles an hour).

The apparently erratic benefits of coast resorts is simply a question of wind direction. If this is from the water, the air is free of pollen, and hay-fever subjects find relief. If the wind is from the land, however, and this is infected with hay-fever weeds, which is usually the case, the proximity of the water affords no relief.

COMPLETE TEMPORARY RELIEF

There are a number of places in the United States and Canada, where, on account of the altitude (over 6,000 feet), latitude or the presence of extensive forests, the common hay-fever weeds are not found, and which are therefore free of hay-fever. The following list of such places has been carefully compiled, and should prove convenient to practitioners in general, who are frequently at a loss as to the nearest hay-fever resort for their patients.

HAY-FEVER RESORTS IN THE UNITED STATES[7]

Arkansas.—Eureka Springs, Heber Springs, Sylvan Springs and Winslow, all located in the Ozark Range, are reported.

California.—Santa Cruz, Del Monte, Santa Barbara and Coronado along the coast, and Lake Tahoe and other places among the high Sierras are reported.

Colorado.—Silver Plume, and other mountains with an altitude over 7,000 feet, are reported.

Connecticut.—The Litchfield Hills, in the northwestern part of the state, afford relief in a certain class of cases along the coast, and the seaside resorts, especially in the New London district, afford relief to a class of inland cases.

Florida.—The coast of southern Florida affords partial relief.

Louisiana.—Covington and Abita Springs afford relief in the vernal type of hay-fever.

Maine.—Rangeley Lakes and Kineo, located on Moosehead Lake, are reported.

Michigan.—At Mackinac Island in a series of fifty cases, sixteen patients were free of hay-fever, twenty-five were improved, and nine were not benefited.

Minnesota.—Duluth is favorably reported.

Mississippi.—Pass Christian, Bay St. Louis and other coast resorts afford relief in the vernal form of hay-fever.

New Hampshire.—Bethlehem, located in the White Mountains, has long been a favorite resort for hay-fever sufferers; Bretton Woods, Jefferson, Fabyans and Dixville Notch are other resorts.

New Mexico.—Cloudcroft, Whitcom Springs, Albuquerque, Valley Ranche, Glorietta, Jemez Springs, Sulphur Springs, El Porvenir and East Las Vegas are reported.

New York.—The Adirondacks (highest point 5,379 feet), Fire Island, an insular strip of land south of Long Island, Thousand Islands Park, Big Moose and Old Forge Lake are reported.

North Carolina.—Eagle's Nest, altitude 5,050 feet; Glen Ayre, Blackstock Knob, 6,378 feet; Black Dome, 6,502 feet; Mount Gibbs, 6,591 feet; Hall Back, 6,403 feet, and Mount Mitchell, 6,711 feet, in the Black Mountains; Double Spring, 6,380 feet; Richland Balsam, 6,370 feet, and Jones' Knob, 6,224 feet, in the Balsam Range, and Mount Buckley, 6,599 feet; Clingman's Drive, 6,660 feet; Mount Love, 6,443 feet, and Alexander, 6,447 feet, in the Smoky Mountains, are reported.

Pennsylvania.—Eaglesmere, the Pocono Mountains, the hills in the vicinity of Bradford, and the mountains near Mont Alto and Caledonia are reported.

South Dakota.—Hot Springs is reported.

Tennessee.—Roan Mountain, altitude 6,310 feet, has long been noted for its relief to hay-fever sufferers.

Texas.—San Antonio is reported as having but few hay-fever cases.

Utah.—There are a number of places in various parts of this state having an altitude of over 6,000 feet which afford relief to hay-fever subjects; also several canyon resorts, such as Brighton and Ogden, where comparative immunity exists. Many persons from Salt Lake City, which has an elevation of 4,300 feet, visit these places with relief.

Vermont.—The Green Mountains (highest point 4,430 feet) afford relief.

Washington.—Although there is the usual percentage of hay-fever east of the Cascade Mountain Range, there is practically none in any part of the state west of this range, which is therefore favorable to hay-fever subjects.

West Virginia.—Terra Alta, Marlinton and Webster Springs are favorably reported, although their altitude (2,500 feet) is not sufficient for marked benefit.

Wisconsin.—Two Rivers, located on a peninsula extending seven miles into Lake Micihgan, is favorably reported.

CANADIAN HAY-FEVER RESORTS

Province of Alberta.—This province is remarkably free of hay-fever, many persons from the United States and eastern Canada obtaining marked relief.

Province of Ontario.—The Muskoka Lake region and the National Park, known as Algonquin Park, abounding in lakes and densely wooded, have a low percentage of atmospheric pollen. Campobello, in the Bay of Fundy, and Prince Edward Island, in the Gulf of St. Lawrence, are favorably reported.

The ragweeds and other members of the *Ambrosia* family[8] are not found in Europe, so that it offers immunity to our common fall hay-fever. The grasses (*Gramineae*), however, are common, so that the vernal type of hay-fever is fairly prevalent in many sections.

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[7] In addition to our own sources of information, a letter was sent to the state board of health, and at least two rhinologists of each state. If no report, or a negative one, was received, the name of the state is omitted.

[8] Scheppegrell, William: The Classification of Hay-Fever Pollens from a Biological Standpoint, Boston Med. and Surg. Jour., 1917, **177**, 42.

The War in Winnipeg.—An advanced guard of the first army corps of house flies has already occupied several stables and other outposts of the city, and it is reported that an immense army of several millions will follow immediately unless prompt measures are taken, not only to repel the invaders, but to exterminate them utterly.—*Winnipeg Health Bulletin.*

NEUROCIRCULATORY ASTHENIA *

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BOSTON

AND

ERNST P. BOAS, M.D.
Captain, M. R. C., U. S. Army
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A condition known as "soldier's heart" was recognized during the Civil War and described by DaCosta. At the beginning of the present war, Thomas Lewis gave the name of "effort syndrome" to the condition and later published an elaborate description. More recently a better name has been adopted—neurocirculatory asthenia. Work produces the syndrome in exaggerated form, but all of the phenomena are present in varying degrees after it declares itself with sufficient force to limit the soldier's usefulness. The condition is quite clearly a vasomotor disturbance occurring in nervous, highly strung persons. The heart, per se, is rarely affected except in rate. Patients with true organic heart disease rarely present this syndrome, and when found are immediately discharged to civil life. A heart lesion may be a comparatively harmless condition in a civilian, but in the stress of army life it becomes a menace, and experience has shown that it is useless for the soldier to continue.

Briefly, the syndrome of symptoms is breathlessness on exertion, tachycardia, palpitation, precordial pain, vertigo, headache, easy fatigue, lassitude, high systolic blood pressure and general nervous instability. All of these symptoms are exaggerated by a slight amount of exercise. Not all patients have a complete syndrome, but the chief complaint is precordial pain. Thrills are common, and their presence led us at the outset to think, in some cases, that we were dealing with mitral stenosis, but the thrill is generally systolic in time, and the other phenomena of stenosis are absent.

The cases are of importance to the military surgeon because of their frequency, and because of the real disability under which the patients suffer. The results of observation here show that the case should be discovered as early as possible. Some patients clearly show the signs of neurocirculatory asthenia at the time they are recruited, and others only after a period of intensive training; but practically all give a past history of the syndrome. We can all recall cases in civil practice. That they are often unrecognized is shown by the fact that only two patients of our series were sent to the hospital with the correct diagnosis. The most frequent diagnoses were heart trouble, tachycardia, myocarditis, some form of valvular defect and pulmonary tuberculosis.

The most important consideration for us as military surgeons is the early diagnosis, treatment and ultimate disposition of these cases. In the United States Army until very recently there has been no category of light duty, so that unless a man was fit for full duty he had to be discharged. As a result, more of our patients have been discharged from the Army than would have been necessary. Under the new regulation providing for "domestic service only," some of those who have been discharged might have been retained for light duty.

TREATMENT

Lewis[1] treats his patients with graduated calisthenic exercises. Patients gradually progress from one class of exercises to the next; and when finally, after a period of about six weeks, they are able to perform the most difficult exercises without distress, they are returned to duty. Those patients who are unable to complete the series of exercises are discharged from the Army. Thus the exercises serve both as diagnostic and as therapeutic measures.

This report is based on a study of eighty-nine cases out of a total of 200 at the base hospital, Camp McClellan, Ala.

In the British army the term "constitutional" is used to designate those patients whose history from youth has given evidence of being not quite up to the average. In our study we have used the term "constitutional" to indicate the foregoing class of patients, and "nonconstitutional" for those whose neurocirculatory asthenia has apparently resulted from some acute infectious disease or has been induced by it.

The majority of our cases have been in the "constitutional" class.

In the treatment of all of our patients Lewis' instructions have been followed carefully, and much the same exercises that he describes have been used. The exercises have yielded valuable information as to the degree of disability, but as a therapeutic measure they have been a failure. None of the patients, not even those returned to duty, showed improvement objectively or subjectively. A few gained in weight and strength, but their cardiovascular symptoms remained unchanged. Of Lewis' patients, 41 per cent. were returned to duty, half of these to full duty, and half to light duty. Of our eighty-nine cases, twelve, or 13.5 per cent., were returned to full duty. One of these returned to the hospital one week later because he could not stand the work, and was then discharged. This leaves 12.3 per cent. of the patients on full duty. Four patients, or 4.5 per cent., were returned to light duty.

Thus 16.8 per cent. of the soldiers treated were returned to duty of some sort. Counting the man who was discharged after being on duty for one week, seventy-four, or 83.2 per cent., were discharged from the Army.

The point, however, that should be emphasized is that the exercises brought about no improvement in the patients whose condition was constitutional. Those men who were returned to full duty showed the same degree of dyspnea, tachycardia, high blood pressure, vertigo, etc., at the time of their discharge that they had on their admission to the hospital. They simply had milder cases. They would probably have stood the heaviest exercise at once, without first undergoing the lighter grades of exercise. In other words, if we had used the exercises as diagnostic means alone, not as a therapeutic measure, we should have discovered at once that these patients presented symptoms only on rather severe exercise, and much time and expense to the government would have been saved.

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* Read before the Section on Practice of Medicine at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

[1] Lewis, Thomas: Report on Neuro-Circulatory Asthenia, and Its Management, Mil. Surgeon, 1918, **42**, 409.

FUNDAMENTAL NERVOUS INSTABILITY

We have become convinced that neurocirculatory asthenia is due to a fundamental nervous instability of the patient that cannot be cured. There is a slight waxing and waning of the symptoms, varying with the general condition of well-being of the patient, but a real cure is impossible. Lewis warns against the diagnosis of neurasthenia in these soldiers, for he says that it prejudices the mind against a possible cure, and renders the treatment less effective as a consequence. When we first began to study these cases they were new to us, and we were guided in their study and treatment exclusively by Lewis' report. At first we, too, discounted the mental and nervous symptoms; but eight months' experience in the handling of these cases has changed our views. The reasons for this will now be enumerated.

The vast majority of the patients give a family history of nervous disorder. The father or mother or some of the brothers and sisters are nervous and irritable, and are easily upset. The patient himself, when carefully questioned, will reveal symptoms dating back to childhood. He, too, has always been nervous and excitable. Small things unnerve him so that he trembles and feels faint. In crises or emergencies, whether it be in games such as baseball or in the line of his work, he cannot stand the strain and quits. He has no stamina. A number of the patients have had enuresis in childhood. Objectively they usually present a number of signs of nervous instability. These become particularly evident after the exercises. There is twitching of the fingers, often a coarse general tremor, and emotional instability sometimes manifested by crying. Two illustrative instances of emotional instability may be mentioned:

A sergeant, a man with mild symptoms who wanted to return to duty, was asked one day by the commanding general, who was on a tour of inspection, how he was getting on. This question from so distinguished a source so unnerved the man that all of his symptoms became acute that day, and he could hardly go through an exercise that the day before had given him little trouble.

Another man had disobeyed a direct order and had received a severe reprimand as a consequence, and was confined in a room by himself for two days. From that time on, all of his symptoms were much worse; the slightest exercise evoked a coarse general tremor, and the patient was weaker than he had ever been before.

Although all of the patients were treated with disregard of their neurotic symptoms, those in whom these symptoms were more marked were seen in consultation by the psychiatrist. Thirteen of these were discharged by the neuropsychiatric board, six under the diagnosis of constitutional psychopathic state; two, of constitutional mental inferiority, and five, of psychoneurosis. However, in most of the cases the mental symptoms were insufficient to warrant any action by the neuropsychiatric board. Major Harlow Brooks at Camp Upton noted the neurotic element in these patients as well as in their families.

ASSOCIATION OF CARDIOVASCULAR AND NERVOUS SYMPTOMS

The cardiovascular and nervous symptoms go hand in hand. Those patients with marked neurotic symptoms represent the severe cases of neurocirculatory asthenia. Lewis reports patients with respirations varying from 60 to 100 a minute. We have seen several patients with respirations from 60 to 70 a minute after exercises. These patients were all distinct psychopaths. Moreover, the dyspnea was not real, for if a patient breathing 60 a minute were asked a question he would reply without showing any signs of distress, using long sentences without drawing a breath. In agreement with Lewis we have found that the symptoms often date from an acute infection, and we have observed a number of patients who were made worse by an intercurrent infectious disease. Careful questioning usually will elicit the information that even before the infection some of the symptoms were present, and that the acute insult was only the exciting factor. Similarly in the cases of those patients who date their symptoms from the intensive training at camp, a significant previous history may usually be obtained. Patients, who at first stated that their symptoms were of only a few months' duration, on careful questioning gave histories of a mild form of the disorder many years back. Lewis found that 43 per cent. of his patients had symptoms before joining the service. Our patients may be justly compared only to those of his who developed symptoms before their entry into active service. Of these, only 36 per cent. were returned to duty, and only 10 per cent. of them to full duty. Thus, in the class of cases the ineffectiveness of treatment is shown in both of our series.

Neurocirculatory asthenia as seen in our training camps occurs in persons with fundamentally unstable nervous system, with resultant instability of the vasomotor system. They do not improve under treatment and should be discharged from the Army at once. With the category of light duty introduced in our Army, the exercises will be of value in grading the men as to the degree of work that they can perform.

Lian[2] has reported on 350 soldiers with disordered action of the heart. He states that the treatment in the chronic cases can be only palliative, and that those who were returned to duty were returned only to light duty.

Major Harlow Brooks[3] has reported briefly on cases of neurocirculatory asthenia at Camp Upton. He too notes marked emotional instability and neurovascular instability, as well as a family history of nervous disorders. He ascribes the condition to hyperthyroidism, and has noted definite thyroid enlargement or prominence in at least two thirds of his patients. Fifty per cent. of his cases occurred in Jews. Thyroid enlargement has been noted in very few of our cases. While many of the symptoms of neurocirculatory asthenia correspond to those of exophthalmic goiter, the general impression that one gets of each case does not justify this diagnosis. Exophthalmos is rare, and when present is very slight. It would be expected that in a large series of patients showing marked cardiovascular disturbance, at least a few would have a distinct goiter or exophthalmos if they had exophthalmic goiter. Moreover, the tremor in these patients is usually much coarser than that found in exophthalmic goiter. Dr. Leszynsky[4] says that in his opinion emotional strain, rather than a disturbance in thyroid secretion, is responsible for the symptoms. This is much nearer the truth. Lewis found only two cases of exophthalmic goiter in a series of 1,000 cases. Only

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[2] Lian, G.: Presse Medicale, 1918, **26**, 11.

[3] Brooks, Harlow: Hyperthyroidism in the Recruit, abstr., The Journal A. M. A., March 9, 1918, p. 728.

[4] Leszynsky, W. M., in discussion on Brooks, Harlow: Hyperthyroidism in the Recruit, The Journal A. M. A., March 9, 1918, p. 730.

4 per cent. of his patients had palpable enlargement of the thyroid. Two and two-tenths per cent. of our series were Jews; 3.4 per cent. were Italians and the rest Anglo-Saxons, mostly native Americans for several generations.

The patients with neurocirculatory asthenia bear a great resemblance to patients with orthostatic albuminuria. There is the same vasomotor and nervous instability. Orthodiagrams show that there is no diminution in heart size after exercise. This condition, too, is found with orthostatic albuminuria. Routine urinalyses of our patients reveal at the most an occasional very faint trace of albumin. In a series of twenty-seven patients, the urine passed before and after exercise was tested for albumin. Six of these cases showed a trace of albumin before the exercise, which in four cases was distinctly increased in amount by the exercise. Two urines showed a trace of albumin before the exercise, and none afterward. In no case did an early morning specimen collected on arising show albumin.

THE BLOOD PRESSURE.

Blood pressure studies have proved very interesting. When the patient is up and about, the systolic blood pressure is high, usually between 135 and 170. The diastolic pressure is generally normal. After exercise the systolic pressure rises greatly, and not infrequently the diastolic pressure drops. A few examples are cited in Table 1. A frequent feature is the persistence and loudness of the fourth sound heard with the stethoscope when taking the blood pressure. Frequently a loud fourth sound can be heard down to the zero mark. This makes the estimation of the diastolic pressure difficult at times.

TABLE 1.—BLOOD PRESSURE

	Blood Pressure after Rest		Blood Pressure after 100 Hops	
Case	Systolic	Diastolic	Systolic	Diastolic
10	155	90	175	70
16	135	65	165	0
17	145	65	185	0
43	150	90	170	78
44	140	85	154	0
45	140	80	184	0
61	154	100	165	70
62	120	80	138	60

Barringer[5] has studied the heart's functional capacity by means of blood pressure readings taken thirty, sixty and ninety seconds after a measured exercise. He has found that when the exercise overtaxes the reserve power of the heart, there is a delay in rise in the systolic blood pressure after the exercise. He expresses the belief[6] that patients with effort syndrome have a decreased cardiac reserve power. Experiments according to his methods were undertaken to study this point. Protocols of our findings are given in Tables 2, 3 and 4. All three patients showed marked dyspnea on the completion of these exercises. Yet the reserve power of the heart as measured by the number of foot-pounds of work that a patient can do before showing a delayed rise in blood pressure is practically normal. Barringer found that between the ages of 20 and 30 the reserve power of the heart measured by this method is about 5,600 foot-pounds in sixty seconds. These experiments show that the symptoms are not due to cardiac weakness, and that the exercises usually used to strengthen a weak heart are unnecessary in these cases.

THE PULSE

The behavior of the pulse after exercise is worthy of note. In all of our cases the pulse rate has been taken every day, before the exercise, immediately afterward, and two and four minutes afterward. Usually the pulse rate is accelerated out of all proportion to the exercise, and does not drop to normal in four, or even in ten minutes. However, at times the pulse slows after exercise, or it may first slow and then become rapid. Examples are given in Table 5. Just what the significance of the variable reaction of the pulse rate is, it is difficult to say. In these patients emotion speeds the heart just as much as exercise. It is probable that this factor causes the variability in pulse rate. Thus a man becomes excited before the exercise. He calms down later, and so, in spite of the exercise, his pulse rate is slower than it was before the exercises.

In a series of 100 patients, Lewis found 48 per cent. showing precordial hyperalgesia. Of eighty-five

TABLE 2.—BLOOD PRESSURE IN CASE 1

	Systolic Blood Pressure
1,200 foot-pounds in 13 seconds:	
Before work	166
30 seconds after work	180
60 seconds after work	178
90 seconds after work	164
6,000 foot-pounds in 60 seconds:	
Before work	160
30 seconds after work	182
60 seconds after work	182
90 seconds after work	176
120 seconds after work	170
6,480 foot-pounds in 65 seconds:	
Before work	146
30 seconds after work	185
60 seconds after work	194*
90 seconds after work	180
120 seconds after work	174

*Delay in rise.

TABLE 3.—BLOOD PRESSURE IN CASE 2

	Systolic Blood Pressure
1,025 foot-ponds in 20 seconds:	
Before work	138
30 seconds after work	153
60 seconds after work	146
90 seconds after work	136
2,460 foot-pounds in 30 seconds:	
Before work	142
30 seconds after work	158
60 seconds after work	152
90 seconds after work	142
4,100 foot-pounds in 50 seconds:	
Before work	142
30 seconds after work	165
60 seconds after work	166
90 seconds after work	160
120 seconds after work	148
5,125 foot-pounds in 65 seconds:	
Before work	125
30 seconds after work	158
60 seconds after work	168*
90 seconds after work	160
120 seconds after work	152

*Delay in rise.

TABLE 4.—BLOOD PRESSURE IN CASE 3

	Systolic Blood Pressure
400 foot-pounds in 30 seconds:	
Before work	150
30 seconds after work	174
60 seconds after work	168
90 seconds after work	166
120 seconds after work	162
2,675 foot-pounds in 45 seconds:	
Before work	150
30 seconds after work	150
60 seconds after work	150
90 seconds after work	150
120 seconds after work	148
5,340 foot-pounds in 85 seconds:	
Before work	146
30 seconds after work	168
60 seconds after work	160
90 seconds after work	154
120 seconds after work	150

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[5] Barringer, T. B., Jr.: The Circulatory Reaction to Graduated Work as a Test of the Heart's Functional Capacity, Arch. Int. Med., March, 1918, p. 363; Studies of the Heart's Functional Capacity, ibid., 1917, p. 829.

[6] Barringer, T. B., Jr.: The Reserve Power of the Heart, Brit. Med. Jour., Dec. 15, 1917.

patients whom we tested, thirty-nine, or 45.8 per cent., had hyperalgesia, thirty-four, or 40 per cent., had no precordial sensory disturbance, and twelve, or 14.2 per cent., had hypalgesia. The degree of hyperalgesia in general corresponded to the degree of pain of which the patient complained. This relationship, however, was not constant. Two patients in whom precordial pain was a continual complaint had no precordial sensory change, and four patients with severe precordial pain had precordial hypalgesia. Eight patients complaining of moderate precordial pain also showed hyperalgesia. Three patients who had no precordial pain had hyperalgesia. Thus the precordial pain and precordial hyperesthesia are not always concomitant.[7]

TABLE 5.—PULSE RATE BEFORE AND AFTER EXERCISE

Case	Exercise	Before	Immediately Afterward	Two Minutes Afterward	Four Minutes Afterward
2	A 15	104	108	116	112
	A 15	112	92	92	92
	A 15	96	112	100	116
	B 15	136	120	104	88
4	A 15	144	72	88	92
	A 15	96	132	120	132
	C 15	84	92	128	92
	C 15	132	128	96	104
	C 15	116	120	124	76
5	A 15	80	144	144	132
	A 15	136	132	132	112
	B 15	92	120	112	104
	B 15	112	120	128	104
	C 15	136	124	112	120
25	A 15	96	80	76	72
	A 15	100	100	112	108
	BC30	132	116	92	88
	C 30	92	132	92	96
33	A 15	124	96	96	96
	A 15	128	104	120	120
	B 15	96	136	112	120
	D 30	94	120	108	120
	D c30	112	88	104	108

CONCLUSIONS

1. The name recently adopted by Thomas Lewis and his co-workers for this clinical picture, neurocirculatory asthenia, is an improvement on the old one.
2. The condition exists in civil life, and most patients give a history of attacks before enlistment.
3. Family history is an important factor.
4. Early recognition is very important. Much time and expense are wasted by delay in diagnosis.
5. Recruiting officers and regimental surgeons should be familiar with the syndrome.
6. Some cases become evident immediately, others after a few weeks of intensive training.
7. Exercises have not improved the patient's condition in constitutional cases. Recently the exercises have been used more for diagnosis than for treatment.

ABSTRACT OF DISCUSSION

Dr. Louis M. Warfield, Milwaukee: I have been particularly interested in this question of effort syndrome or neurocirculatory asthenia, or whatever one chooses to call it. I am examining for the cardiovascular board in the camp at Jefferson Barracks. About 50,000 men passed through the camp since I have been there, and I have examined all the referred heart cases besides about 20,000 men in routine work. The problem has been how it is possible to determine these cases at that stage. The exercises that one can give these men must necessarily be brief, and one can pick out only the cases where there is really some fairly gross condition bringing about the inability of the individual heart to carry on these minor exercises. The exercise is to hop 100 times on the toes of the left foot. That is quite sufficient to determine at once the capability of some men for military service. It has been my experience in examining these cases that a number of men with mitral regurgitant murmurs who have responded to this exercise even better than I could respond to it. I do not believe that these men are unfit for general military service, and I cannot see that a systolic murmur itself, especially in a man who has had no rheumatism or where infection has been trivial, should unfit him for military service. Major Robey, is there any way that we can determine at the recruit depots whether these men are going to break down or not? Undoubtedly a number of men have hearts which respond in a normal way to the exercises who will probably break down under strain. We cannot look inside the body to determine the muscular energy of the heart, nor can we determine how much the heart is going to stand under a certain strain; yet it is a distinctly important subject, not only for the man himself but from the standpoint of expense to the government, to take these men into training and then return them back into civil life after a while. I recall only one man with neurocirculatory asthenia or effort syndrome. I have seen a number of men who I thought were hyperthyroidism cases. Other cases have been termed psychoneuroses by the psychiatrists, and there were some cases which after careful examination we were able to determine were cases of pulmonary tuberculosis. Those cases we can detect, but it is the great group of cases of trivial heart murmurs and the cases that do not seem to give very much information of what is going to happen to them eventually on which we want to have some information, so that we need not subject them to military training and to some future condition which will be inimical to them.

Sir James Mackenzie, London, England: When the war broke out men were shocked to find that they had heart disease and were rejected from the army. I drew up a short account for the war office, calling attention to how you could recognize murmurs that were of significance and murmurs that could be ignored. A perfectly sound heart can give murmurs. If the heart is not otherwise impaired; if it is normal in size, normal in rate, and the response to effort is good, ignore the murmur—it makes no difference where you hear it. That dictum was adopted and sent to all the recruiting stations in England. The effect lasted for about three months, then it was forgotten. New instructions were issued and they were back to the old things of mitral regurgitation of first, second and third degrees. I remember a man in Manchester told me that no man dies with mitral regurgitation; the mere fact that a systolic murmur is present does not matter. What is it due to? If you cannot tell what it is due to, why give it a name? We had a number of boys rejected. One lad was rejected six times, and it was only because of my certificate that he went into the army. He had a rough systolic at the apex. He has been through the very hardest time, and he was as fit the last time I saw him as he was on the day he entered the army, so that the seriousness of systolic murmurs should never be considered. Never base a grave prognosis on only one sign. Take an irregular heart; if that is the only sign, ignore it. If there is only a murmur, ignore it, but examine the muscle. A failing muscle always shows.

The hyperthyroidism cases also rose in England and spread. I submitted 300 cases to careful examination; the symptoms were almost identical. Some times there was irritability of the heart; sometimes there were tremors, and in only one case could I say that there was an enlargement of the thyroid or a suspicion of protrusion of the eye. But they say, "Here is this hyperthyroid," and I say, "There is the coccygeal gland, it might be due to that."

In regard to tobacco: Some of the men had gotten into the habit of chewing guncotton to quicken the heart, but when we analyze all cases we find that the excessive use of tobacco, in addition to exertion, will cause all sorts of symptoms. Tobacco is one agent; it is not the whole story, though it may be a predisposing cause.

In regard to psychic conditions: There is one type of man who has the "X" disease; and the reason I call it the "X" disease is because I do not know what it is. Other people describe it under different names, as congenital something or other. The type is as follows: The man is, as a rule, poorly nourished and often has not much muscular development. He has those cold extremities, almost like Raynaud's disease, and sometimes they become flushed, but he does not enjoy a cold bath; that is, the response to cold is excessive, like the syndrome effort. These people generally have a red nose in cold weather, and their temper is irritable. They very often have an irritable heart, and when put into the army they break down. They also exhibit a number of mental peculiarities—melancholia and digestive disturbances, such as gastric ulcer, and what my colleague, Arbuthnot Lane, calls ileostasis, a form of intoxication. I do not know whether he is right, but I have traced that condition down to the intestines. These people have been treated everywhere, but if you look at them, as a rule, a good general practitioner can tell that there is a change in a man's condition. You look at the man and you will conclude that there must be some nutritional defect; that the man is poorly nourished; his heart is poorly nourished; and a large number of my cases consult me on account of that.

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[7] In addition to the references already given, the following will be found of interest:
Reports on Soldiers Returned as Cases of "Disordered Action of the Heart," or "Valvular Disease of the Heart," Medical Research Committee, Special Report Series No. 8, London.
Heart, 6, No. 4.

In England we have a class termed conscientious objectors. One of them came to me. I took him to a mirror and said, "Don't you think that is not a well nourished face?" He said, "Yes." "And what is the condition of your heart?" "It is half starved." Then I said, "If your heart is half starved, your brain is half starved."

Dr. J. N. Hall, Denver: I wish to ask regarding the diagnosis of exophthalmic goiter in the soldiers who come from the Great Lakes district, where goiter is common. The symptoms as put down in our report were choking, dyspnea, lack of endurance, tachycardia, palpitation, exophthalmos in many cases, rapid exhaustion on exercise, general exhaustion, tremor of fingers. Nearly all showed distinct thyroid enlargement—some to a marked degree. Some gave a history of neuroses, and in nearly half the cases goiter existed in the family. Cardiac reserve was poor. I would like to know how those cases are to be classified.

Major B. S. Oppenheimer, New York: Late last summer the Surgeon-General sent six American medical officers of the Reserve Corps to the English Military Heart Hospital, with which Sir James Mackenzie has been connected since its inception. After serving there for several months, they wrote an independent report in which they suggested the new name, neurocirculatory asthenia, for a now familiar symptom complex. After the completion of this report Dr. Thomas Lewis wrote a brief but valuable foreword, showing its military bearing to the young American forces. By some mistake, however, the paper was printed in the April issue of the *Military Surgeon* with Dr. Lewis as the author; the names of six American officers really responsible for the report, and also for the introduction of the name (N. C. A.), were entirely omitted. This explanation may make certain parts of that paper more intelligible. Several other names have been used, such as "disordered action of the heart," "irritable heart of soldiers," "effort syndrome," "athlete's heart," "cardiac neurosis," etc., but the use of any term which directs the soldier's attention to his heart handicaps him and the officer who deals with him. Neurocirculatory asthenia overcomes that objection; moreover, the name is not meant to imply any theory of the fundamental pathology, which is still unknown. It is purely a descriptive term, indicating that in this syndrome there are nervous and circulatory symptoms associated with an increased susceptibility to fatigue.

Since returning to America there has been an opportunity to compare the cases among American recruits who have broken down in training with such symptoms as the British soldiers who were invalided from the front with "D. A. H." The condition as seen in England and America is identical, but the cases here are milder, and, as Major Robey and Captain Boas point out, belong almost entirely to the constitutional group: i. e., to the group that had symptoms prior to entrance into service. The question of fundamental pathology, especially that of hyperthyroidisms, is here complicated by the great prevalence of thyroid enlargement in the "thyroid belt" of the Great Lakes. Some of these men have a simple thyroid enlargement; some suffer from thyreotoxic hearts, but it is exceptional to find a typical case of Basedow's disease. As to the question of nervous instability which Major Robey has emphasized, Captain Rothschild and I took in detail the family and the personal histories of one hundred soldiers in Colchester, and found that 46 per cent. had predisposing neuropsychic factors in their family and previous histories, but that 39 had absolutely negative histories and had given valuable military service before breaking down. Only a certain percentage of cases can be picked out in the initial examination of drafted men, for the disorder may not develop until the soldier is exposed to the conditions of modern warfare. In view of the abundance of perfectly normal recruits in this country, every man who is sent overseas should be fit; and, for the present at least, it is sound to reject doubtful or borderline cases.

Dr. Abraham Jacobi, New York: When a mitral murmur exists and you want to be sure, or fairly sure, that you have to deal with an organic disease, you must expect one thing at least, dilatation or hypertrophy, or both. Unless you find that, you are not dealing with organic disease. Then there are other murmurs which you may find one day and not the next, or you may find them after exertion only and not connected with dilatation or hypertrophy. They are functional, not organic. These cases are not infrequently set down as "myocarditis." They are not cases of myocarditis. They are simply cases of a certain amount of muscular weakness of the heart, fatty heart, nervous heart, tobacco heart. I have seen a great many cases among men or women, mostly men, who complain of the heart. There are very few symptoms about the heart, that is true. The only thing I make these patients do is to run about the room or run upstairs and down again, and if a murmur is present, allow the patient to rest ten minutes, and the murmur is gone. We see such cases very frequently, and a number of those men are quite fit to do moderate work. These are the cases that are often diagnosed as mitral incompetency, which they are not. I expect a mitral incompetency only when there is some hypertrophy or dilatation or both.

Dr. William H. Robey, Boston: There is no surprise because examiners are sometimes puzzled about findings in heart cases. They hear abnormalities, or what appear to be abnormalities, and may easily be in doubt as to correct classification. The examination must necessarily be brief. The War Department has sent out a large number of cardiac examiners provided with a set of rules which have been followed with considerable care, since in 26,000 soldiers at Camp McClellan we have found very few cases of organic heart disease. We have discovered some cases of organic valvular disease, but none of muscular insufficiency. Can the heart do its work? If you think you can answer that question, the recruit should be given a trial, leaving a more thorough study to the cardiac experts at the various camps. Sir James Mackenzie has called attention to the importance of not condemning a heart on a murmur alone.

Major Oppenheimer has very truly said that we do not care very much what name you give to the syndrome described in my paper. The chief point is that the condition exists, must be recognized and dealt with. Captain Warfield has asked a very pertinent question. How can you tell when a man is recruited whether he has neurocirculatory asthenia or not? It is a difficult problem and cannot always be answered at once. If the man has tremor, rapid heart and cyanosed hands, with a history, then it is quite clear that he comes within this group and should not be accepted. Then there is the other class, even among the constitutional cases, which does not show symptoms until there is the strain of camp or battle. No one can discover these cases until they are put to the test. The point we want to emphasize is that the syndrome called neurocirculatory asthenia is a real condition and must be recognized as early as possible for the good of the service.

Reduce the Protein Intake.—Chittenden has shown that when the protein intake is reduced by one half or less of that which the American appetite suggests, professional men, soldiers and athletes may be maintained in the best physical condition.—Lusk, Food in War Time.

IMPREGNATION OF THE UNDERWEAR AS A MEANS OF CONTROLLING THE CLOTHES LOUSE *

WILLIAM MOORE
ST. PAUL

The data obtained in the experiments made to determine the possibility of impregnating the underwear with some substance that would destroy the clothes louse fall into four distinct divisions: (1) impregnation with oil; (2) impregnation with oils carrying certain toxic substances; (3) impregnation with the toxic substances without the oil, and (4) impregnation with nonorganic chemicals.

Since there seems to be a general understanding that oily underwear is unfavorable for the development of the clothes louse, it was first determined to study a number of different oils. From the examination of the results, it was apparent that in the use of mineral oils, at the rate of 1 c.c. to 4 square inches of a medium-weight piece of underwear, the oil would destroy the lice in a mechanical manner. With a higher rate of oil than 1 c.c. to 4 square inches, this was more apparent until one reached 1 c.c. to 1 square inch, the point of saturation for the underwear.

A number of mineral oils were used in this manner, such as lubricating oils, petrolatum, paraffin, chlorcosane, and crude oils from Pennsylvania, Kansas and Oklahoma. On reduction of the amount of oil present to about 1 c.c. to 8 square inches, a point at which the garment was just visibly oily, the killing quality of the oil disappeared to a great extent. In using lard, fish oil and "bone oil," the results were no better than in the use of mineral oil, and the same may be said to be true of the vegetable oils, cottonseed oil, olive oil, peanut oil, rape-seed oil and palm oil. It was noticed, however, that, in the vegetable and animal oils, if the oil was rancid or became rancid during the period of the experiments, its killing qualities were, in general, increased. The presence of oil equal to 1 c.c. to 4 square inches slightly retarded egg-laying; at the rate of 1 c.c. to 8 square inches, egg-laying was not retarded; nor was the hatching of the eggs interfered with.

In the second phase of the work, in which certain toxic chemicals were introduced into the oil, a large series of experiments was conducted.

Among the organic acids, salicylic, oleic, valeric, and cinnamic acids were used. Valeric acid was the only one giving good results; but, owing to its volatility, it soon disappeared.

Among the iodin derivatives used were iodoform, phenyl iodid and thymol iodid. Iodoform was very good while phenyl iodid, although killing at first, lost these properties within twenty-four hours. Surprisingly, thymol iodid failed to kill.

Several alkaloids and similar compounds were used, such as cinchonin, morphin, strychnin and urea. These were uniformly of little value, owing possibly to their insolubility in the oils used.

Crude anthracene was effective and retained its effectiveness for as long as 118 hours. Possibly some chemical, such as diphenyl, carbazol or arcidin, present as an impurity in crude anthracene, was responsible for the killing of the lice, since neither commercially pure nor chemically pure anthracene killed.

Diphenyl destroyed the lice within twenty-four hours and retained its killing qualities for as long as 280 hours. A 10 per cent. solution of naphthalene in lubricating oil resulted in the destruction of 100 per cent. of the lice in twelve hours, but such underwear twenty-four hours later failed to kill the lice. Alphanaphthylamine was just as effective and still killed 100 per cent. of the lice within twenty-four hours, after the underwear was 720 hours old. Sulphonated naphthalene, tetrachlornaphthalene (addition compound) ordinary chlorinated naphthalene and dichlorinated naphthalene were all more or less ineffective. In a study of betanaphthol and alphanaphthol, the former was but slightly toxic, while the latter killed slowly and its killing qualities lasted for as long as 360 hours.

The nitro compounds tried were paranitrophenol, which failed to kill, and orthonitranilin, which was effective for as long as 480 hours.

Among the sweet-smelling aromatic compounds, coumarin was fairly toxic; vanillin failed to kill, while heliotropin, or piperonal, proved to be the most effective compound tried, killing 100 per cent. of the lice within twelve hours, even after a period of 528 hours had elapsed.

The phenol compounds, creosote and tricresol, were effective, while guaiacol carbonate and phenyl salicylate were nontoxic, the latter even at a concentration of 25 per cent. Tribromphenol was toxic to the lice, but would not last longer than 192 hours.

Summarizing the data, it appears that the chemical to have lasting qualities must not be less volatile than a compound boiling at from 300 to 350 C., while the most toxic compounds are those with boiling points of 265 C. or lower. Our most favorable compound—heliotropin, often known under the name of piperonal—has a boiling point of 263 C.

The second phase of the work was planned with the object of determining whether or not these organic compounds retained their toxicity when no oil was present. Heliotropin, o-nitranilin, benzidin, resorcinol and betanaphthol were tested. The data show no reduction in toxicity, while some of the compounds killed even better without the oil, no doubt owing to larger quantities being used than was possible when the chemical was dissolved in the oil.

A number of inorganic compounds were tested for comparison with the organic compounds. Oil solutions of copper oleate, zinc stearate and sulphur were tried with negative results. Copper sulphate, zinc chlorid, ferrous sulphate, sodium arsenite, sodium hydroxid and silver nitrate were all used at 2 per cent. aqueous solutions, but were ineffective. Similar results were obtained in experiments with a saturated aqueous solution of lead acetate; but a saturated aqueous solution of mercuric chlorid killed within twelve hours. Of the inorganic solutions, it was the only one tried that gave favorable results. Sodium fluorid, which is used for biting lice on chickens, was ineffective against the clothes louse.

In considering the results, the two most favorable compounds selected for further study were creosote and heliotropin. A strip of underwear, containing a 10 per cent. solution of creosote in lubricating oil, used at the rate of 1 c.c. to 8 square inches of underwear, worn next to the skin, was effective for twenty-four

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* Read before the Section on Pharmacology and Therapeutics at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

hours, after which it was found to have lost its toxicity.

Surprising results were obtained with heliotropin, which was effective for only forty-eight hours when worn. A study of why its toxicity should be lost so quickly, when it is not a very volatile compound, brought out the fact that the lubricating oil was being absorbed by other clothing, thus weakening the dose to a point at which it was no longer effective.

If heliotropin is used without oil, it crystallizes out and is soon rubbed off. It is therefore necessary to use some other compound of an oily nature that is too viscous to be absorbed rapidly by the underwear. Experiments with heavy lubricating oils, beeswax, petrolatum, spermaceti and oil of theobroma (cacao butter) were conducted. Results showed that a 5 per cent. solution of heliotropin in ether, to which 0.5 gm. of fat or wax was added, would remain effective for seventy-two hours. When increasing the amount of heliotropin, it was found to be most soluble in oil of theobroma. When 1 gm. of heliotropin to 3 gm. of oil of theobroma dissolved in ether, carbon bisulphid or benzene was used, spread over 48 square inches of underwear, the underwear could be worn for 168 hours before it lost its toxicity to lice.

Considering the results of all the experiments, it appears that 168 hours is the maximum time that an effective compound will remain in the underwear in sufficient quantities to kill the lice quickly. Using a less volatile compound, which would remain in the clothing a longer period of time, would result in a diminished toxicity, that is, an increase in the time required to kill the lice.

Division of Entomology, University Farm.

ABSTRACT OF DISCUSSION

Dr. Augustus Wadsworth, Albany, N. Y.: I have not made any study such as Dr. Moore has made of the destruction of lice, but I stumbled upon a very effective and simple method of getting rid of these animals rapidly. We went ahead on the basis that the animal might feed on the solution, and I mixed alcohol, water and glycerin, in equal parts, and added mercuric chlorid in the solution of about 1:500 or 1:1,000. I was especially interested in Dr. Moore's remarks of figures by the government on the use of mercuric chlorid. The men in charge of the animals were directed to spray the ears of the rabbits with this solution, not carefully, but quite carelessly, in fact. Invariably, within a short time, depending on the amount of inflammatory action on the ears, they died—whether because of feeding on this solution or not I do not know. I sent a sample of this solution to Dr. Howard for investigation. It does not seem to me at all impracticable, at any rate, to give so effective and simple a remedy a trial, as in any event it would seem it can have no harmful effect. It is not necessary to use such large quantities of it. I should like to know if it would prove effective against the body louse.

The Secret of Longevity.—The late S. Wier Mitchell, himself an enthusiastic mountain climber and pedestrian, related to me an interesting conversation he had with the late John Biglow, who survived till he was 97. Mr. Biglow asked Dr. Mitchell how he had attained the then age of 80. Biglow being the elder, Dr. Mitchell urged him to divulge his cherished principles of life. Mr. Biglow replied with unction that he "had never smoked, never drank and never taken any form of exercise." Whereupon Dr. Mitchell replied, he himself had smoked since boyhood, had always taken wine and enormous amounts of active exercise. No man had ever lived a fuller, more agreeable or successful life than that of S. Wier Mitchell, and he ranged the hills till just before the end.—J. Madison Taylor, M.D.

Military Medicine and Surgery

IMMOBILIZATION OF PATIENT ON STANDARD ARMY LITTER

A METHOD OF SECURING THIS AND TRACTION ON BOTH LEGS WITHOUT ANY EXTRA APPARATUS EXCEPT THE PATIENT'S WAIST BELT

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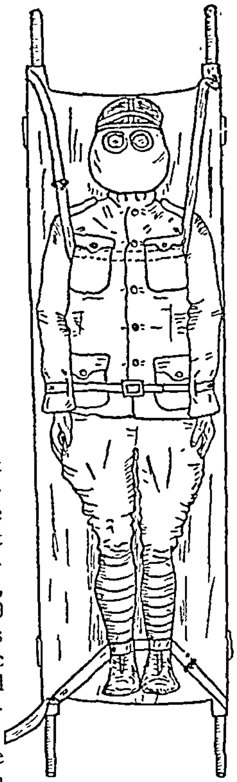
Captain, M. C., N. G.
FRANCE

To meet the needs of the Army for a litter in which the patient can be made secure and in which traction can be provided, this method has been designed:

1. The patient is placed on his back on the litter, and is moved upward until his head is off the canvas.


Method of securing immobilization of patient and traction on both legs on standard Army litter, without any extra apparatus except the patient's waist belt.

2. The litter sling is shortened at the head of the litter by sliding the buckle about 15 inches. This sling is then passed over the right shoulder, down through the right axilla, across under the back, up through the left axilla, over the left shoulder, and the end loop of the sling is slipped over the left handle of the litter.

3. The patient's waist belt (regulation length) is fastened fairly tight around his waist and forearms. If he is delirious the belt is passed through a slit cut in each sleeve of the blouse.

4. The patient is moved downward to the normal position on the litter, when the upper sling will become taut.

5. Strong traction is made on the patient's left foot, and at the same time a tight half hitch is made with the sling on the same foot. The sling is held taut, traction is made on the patient's right foot, and the sling secured with a similar half hitch. The sling is then tied securely to the handle of the litter at the patient's left foot.

ADVANTAGES

The patient is now secured to the litter. He cannot fall off in any position. He cannot interfere with his mask or dressings even if left alone during stress of work. If splints are not available, he can, if this method is properly applied, be transported for miles without injury or great discomfort. Additional traction may be applied to either leg by another belt or rifle strap being applied to the foot as a "Spanish windlass." In darkness or when going around turns in trenches, the patient cannot fall off the litter. The method can be learned in one trial.

This method, in addition to its use for purposes of fixation and traction, is of especial value as a ready means of restraint when the patient is delirious or maniacal.

A spiral puttee may be used instead of the waist belt, and may also be used to make traction on either arm, the upper litter sling producing effective countertraction.

TYPHOID IN A COMPANY OF IMMUNIZED SOLDIERS

SAMUEL BRADBURY, M.D. (New York)
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FRANCE

The occurrence of four cases of typhoid fever in a company of 175 men (Company F, Eleventh Engineers, (Ry.), A. E. F.), who had been immunized but five months before the occurrence of the infection, is of enough interest to warrant a brief report. The available facts are not so complete and convincing as is desirable, especially as there is a bacteriologic discrepancy to be noted later. Despite this, it is hoped to emphasize the fact that, while an effort has been made to protect our soldiers from typhoid group infection by immunizing them, the six injections they received are not a guarantee that they will not contract one of these diseases.

Some persons do not develop immunity, or retain it a very short time, as is known from the not unusual second attack of typhoid, and in any event no soldier should abuse his immunity. Most of the men are immune, for how long is not known; but every factor that has made typhoid almost an army curiosity must be carefully observed. Rist,[1] in writing of typhoid in the French army, says that at the beginning of the war, in August, 1914, there were 2,500,000 men brought into the army who had not been immunized. By the end of 1915 more than 80 per cent. had been inoculated, and during the same period the drinking water problem had been solved, fecal matter properly disposed of, better sanitary arrangements made in the cantonments and trenches, and carriers had been searched for and isolated. In January, 1915, there were 13,993 cases of typhoid but in December, 1916, there were only 323 cases. The regiment was organized and the prophylaxis against typhoid and paratyphoid A and B and against smallpox administered at Fort Totten, N. Y. The medical officers were assigned to the regiment during its recruiting period, gave the immunizing injections, and all were with the same regiment until March, 1918. I was with the company in which the cases occurred from the latter part of August, 1917, until the middle of February, 1918, and thus had the opportunity of following the epidemic. That the immunization was thoroughly and completely done was due to the surgeon, Major H. H. VanKirk, M. C., who adopted the following procedure: Each company furnished him with two rolls, arranged in alphabetical order, of all enlisted men. An entire company was then directed to report at the dispensary tent. Each man, as he received the injection, gave his name to the medical officer in charge of the roll of the company, and the date of that injection was written opposite his name on the roll. One list was used for the dates of the three injections of typhoid vaccine and the other for the injections of paratyphoid (mixed A and B) vaccine. Smallpox vaccination was done on the day of the first injection of typhoid vaccine, and if not positive about ten days later, was repeated. In Company F, typhoid vaccine was injected, June 2, 11 and 18, and the paratyphoid vaccine, June 22 and July 2 and 11, 1917. The original check lists of this company have been consulted, and it is found that each of the four men who contracted typhoid had the three doses of each vaccine on the dates specified. The vaccine used was that supplied by the Army, contained 1 billion organisms per cubic centimeter, and the dosage was that usually employed, 0.5 c.c. for the first dose and 1 c.c. each for the second and third doses. About 1,200 men were immunized with no ill result. There were perhaps forty men who were excused from duty for a day or two, usually after the second dose.

Of the patients with typhoid, the diagnosis in every case was made by the isolation of *Bacillus typhosus* from the blood, urine or feces. All bacteriologic work was done at the hospitals of the British Expeditionary Forces to which these patients were sent. Records of the temperature and pulse and a few daily notes of the two earlier cases are available as a simple chart had been prepared for notes on the early fever and pulse rate of trench fever which had appeared in the company early in September. None of these men were held in camp longer than seven days, and the later patients were kept only two or three days.

REPORT OF CASES

Case 1 (161523).—A white man, aged 21, in the two weeks preceding the onset of fever had two attacks of severe epistaxis and for one week had been constipated. November 6, at sick call, he complained of stiff neck, severe occipital headache and backache. The pulse was 110 per minute and the temperature 102. After two days of rest in bed, a laxative and acetylsalicylic acid every three hours, the pain in the head and back was no better, the tongue was heavily coated, fever was continuous at about 102, and the pulse had dropped to 84. The temperature rose gradually to 104. November 13, the spleen was not felt, no rash was noted, but the pain in the back and head was considerably lessened. Typhoid was suspected and the patient was transferred to Casualty Clearing Station 56, British Expeditionary Forces, where typhoid bacilli were isolated from the stools.[2]

Case 2 (161638).—A white man, aged 47, a steady beer drinker, and with an old mitral stenosis, noted in September that he had slight decompensation after some heavy work. He reported sick, November 14, complaining of chilliness and fever, frontal headache, slight cough, and pains in the feet and legs. There had been no epistaxis, no anorexia and no irregularity of the bowels. The temperature was 100 and rose rapidly and with quite regular daily remissions until November 17, it was 103.4, the pulse varying widely between 80 and 110. At first only the mitral stenosis was noted; November 17, a few scattered râles were heard over both sides of the back, and the next day the spleen was easily felt and there were definite rose spots on the abdomen. He was then transferred to the British Medical Services No. 9 (Lakeside, U. S. A.) General Hospital, where *Bacillus typhosus* was isolated from the urine.[3]

Case 3 (161578).—A white man, aged 27, reported sick complaining of nausea, feverishness and diarrhea. Two days later, November 30, the temperature had risen, the tongue was very dry with a thick brown coat, and he was sent to No. 9 (Lakeside, U. S. A.) General Hospital, British Expeditionary Forces, where *Bacillus typhosus* was isolated from the blood.[3]

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[1] Rist, Edouard: Acute Contagious Diseases in the French Army, Am. Jour. Pub. Health, 1917, 7, 981; abstr., The Journal A. M. A., Feb. 9, 1918, p. 415.

[2] Letter from the deputy assistant director of medical services, headquarters, Third Army, British Expeditionary Forces, to the surgeon, Eleventh Engineers (Ry.), under date of Dec. 16, 1917: "Bacillus typhosus isolated from the stool of . . . 161523, and from the blood of . . . 161603, at C. C. S. 56, B. E. F."

[3] Letter from the chief of the medical service, No. 9 (Lakeside, U. S. A.) General Hospital, B. E. F., to the surgeon, Eleventh Engineers (Ry.), dated April 16, 1918, in response to inquiry; "161638, . . . Bacillus typhosus isolated from urine. 161578, . . . Bacillus typhosus isolated from blood. 161553, . . . ran a course simulating typhoid. Rose spots, big spleen and dicrotic pulse. Enteric group was not isolated from blood, urine or feces."

Case 4 (161603).—A white man, aged 19, reported sick November 29, with fever rising slightly until December 1, he was sent to Casualty Clearing Station 56, where typhoid bacilli were isolated from the blood.[2]

ADDITIONAL CASES OF FEVER

There were during the same period, the last three weeks of November, several other cases with fever of undetermined origin; one especially was clinically typical typhoid as reported from the hospital.[3] These undetermined cases have not been included, as all attempts at isolation of typhoid group bacilli from blood, urine or feces failed. All four typhoid patients have recovered their health, and three of them have returned to duty. As nearly as may be determined from their statements, no one was severely ill, though one (Case 2) developed a phlebitis in one leg. The one man who has not returned is now quarantined in hospital as a paratyphoid A bacillus carrier,[4] though reports of all bacteriologic examinations of each man at the time of his illness declared the infection to be *Bacillus typhosus*. Such a mistake may be easily made without careful differential tests, and unfortunately it is not possible at present to give the methods of examination. It would seem probable that in all four cases infection originated from the same source and they may have been all infections by paratyphoid A bacilli. At any rate, each man had the usual amount of each vaccine that is thought sufficient to render him immune to either of these diseases. It is generally admitted, I believe, that immunity conferred by inoculation with paratyphoid A and B bacilli is not as specific or of as long duration as that produced by vaccination with *Bacillus typhosus*.

POSSIBLE SOURCES OF INFECTION

An investigation as to possible sources of infection was essential. The camp was on ground sloping toward the north. There were no traces of any former buildings nearer than the ruined village 500 yards west, and from the appearance of the ground no other soldiers had been camped at this place. All latrines were deep pits, box covered; urinals were of the covered soakage pit type with funnel; all garbage was burned daily at the camp. The kitchen was not screened, and there was no mess room, the men eating in their tents or huts in rainy weather and in the open otherwise. Flies were very few, even in August and September. The men were quartered in tents at first, but during the last two weeks of October huts were provided. Any one sick in camp was at once transferred to a regulation pyramidal tent reserved for that purpose, and cared for there by an enlisted man, a graduate nurse. Each typhoid patient had been living in a different hut.

In the area for 10 miles about the camp there had been no civilians for at least seven months, when Allied troops first occupied this territory. The troops in the same area averaged less than two cases of typhoid a month throughout the year, and the medical officer then in charge of bacteriology at Casualty Clearing Station 56, where patients with infectious disease were usually sent, informed me that our men were the first with typhoid he had seen for six months. There was no other typhoid in that area at that time.

The water used for drinking and cooking was piped from a large spring 4 miles distant, to "water-points" for the men, to horse troughs and to railway engine supply tanks. This water requires at the source less than one-fourth measure of chlorinated lime per hundred gallons to neutralize the organic matter present, and instructions at all water-points were to use 1 measure (= 1 gm.) of chlorinated lime per water-cart (114 gallons). For troops without water-carts there were two galvanized iron tanks of chlorinated water. Each morning one of these tanks, alternating daily, was completely emptied, refilled, chlorinated in the same strength as for water-carts, and allowed to stand for twenty-four hours before being used. They were attended to by the British Sanitation Corps and were used by several small detachments of other troops nearby. Company F took its water from these tanks, carried it about one-fourth mile to camp in large cooking pots, and there stored it in an iron tank kept for that purpose and from which water was dipped when wanted. The arrangement was not ideal: a water-cart was requisitioned for early in September but did not arrive until December. About October 10 the water began to taste as if cresol or tar had been added to it. A request, made October 14, to have this taste investigated resulted in having the water-point put "out of bounds," instructions to get our water from the railway supply tank and chlorinate it ourselves, and a reply stating that the taste was due to a new lining with which the storage tank supplying the water-point had been repaired. The water-point was continued closed for about four weeks, and in the meantime the company drew its water from the railway supply tank. The mess sergeant was entrusted with the chlorination. He was instructed in the method and care necessary in mixing the chemical, and frequent inquiries were made as to whether it had been properly done.

On examination of the kitchen force it was discovered that the mess sergeant had had typhoid in Mount Sinai Hospital, New York, in 1915; one cook had had typhoid in Florida in 1903, and one cooks' helper in 1910 had had typhoid in Pawling, N. Y. The two cooks and two cooks' helpers had been acting in that capacity since the organization of the company in June, 1917. The mess sergeant was appointed about Aug. 1, 1917. There are also employed in the kitchen four men, known as kitchen police, who are detailed daily from the company. Their duties include washing the cooking utensils, procuring the fuel and water, and cleaning up about the kitchen; at times they are entrusted with peeling vegetables, cutting bread, mixing hash, etc. Of the men who had done kitchen police duty during October and November, practically the entire company except the noncommissioned officers, six had had typhoid fever: a total of nine possible carriers working in the kitchen, three of them constantly, six at intervals.

Infection on pass to civilian area was not likely, as none of the men taken sick had been away since September. Infection by green vegetables or other uncooked food was not likely, as none had been served.

November 10, Company B and thirty men of Company E of the same regiment were ordered to

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4. Letter from the commanding officer of No. 9 (Lakeside, U. S. A.) General Hospital, B. E. F., to the chief surgeon, American Expeditionary Force, copy to the surgeon, Eleventh Engineers (Ry.): "161523, . . . admitted here from 46 Stationary Hospital, B. E. F., March 19, where he was diagnosed paratyphoid carrier. 161523, . . . is now quarantined in 25 Stationary Hospital, B. E. F." Letter from headquarters, No. 9 (Lakeside, U. S. A.) General Hospital, B. E. F., to the surgeon, Eleventh Engineers (Ry.), dated May 12, 1918, in response to inquiry: "Returned. This soldier was a paratyphoid A carrier."

is camp. Company B ate only food prepared in its own kitchen, and the men of Company E were divided for rations between the messes of Companies F and B. All used the same water, at first from the railway supply tank and later from the water-point. From August 27 to December 3 there were five officers attached to Company F. The food and water for their mess came from the same kitchen as did that of the men, but the food was prepared separately. November 10, officers of the newly arrived companies, five in all, joined this officers' mess, and during the entire period there were frequent visiting officers but no cases of typhoid. Since November 29 no new cases have appeared.

December 3, as the camp had been shelled for three or four days, the whole command was ordered to leave. The water question could therefore be disregarded in measures taken to prevent further infection, and, in my opinion, the water could not be held responsible, there had been so many other troops using the identical supply without any infection.

The mess sergeant was removed, November 29, from the kitchen for other reasons than the occurrence of typhoid in the company, and while at work the next day was unfortunately captured by the Germans before any specimens of feces or urine could be examined. The remainder of the kitchen force was sent to hospital during December for careful bacteriologic examination of their stools and urine to ascertain that they were not carriers, and no bacilli were found in any of them. The stools of the six men in the company, with history of typhoid, who had worked in the kitchen during October and November were examined but once, and the results of that examination have unfortunately never been received.

In the armies of the British Expeditionary Forces, to which we were then attached, there is a standing order that no man who has had typhoid fever or dysentery shall work in the kitchen. Accordingly, from Company F four men, who gave no history of either of these diseases, were selected to act as permanent kitchen police. The cooks and cooks' helpers were allowed to continue as such, as they had been proved noncarriers.

The epidemic of four cases was caused, in my opinion, by a carrier working in the kitchen of Company F: either the mess sergeant or one of the men detailed from the company each day; but this has not been determined definitely. The infection was limited to men eating from one mess kitchen in which seven possible carriers had been working. Men of another company, eating at their own mess, but using the same water, did not have any infection, and there was no typhoid in any British troops using this water. The officers using the same water, and food prepared separately, but in the same kitchen, did not have any illness. There has been no other typhoid in any other company in this regiment.

It may be concluded that the immunity in four men in a company of 175 was not of five months' duration. That they had six weeks of hard work, with long hours and irregular meals, owing to necessities of the service at that time, and that they may have been subjected to an extremely heavy dose of infecting bacilli, as might occur in carrier infection, are possible factors. To explain the infection on a difference in strain of organism, one against which there was no protection, does not appear probable, as one would then expect an epidemic of considerably larger proportions.

TYPHOID IN FRENCH IMMUNIZED SOLDIERS

In the present location all medical literature is very meager. One review, by Pagniez and Valléry-Radot,[5] of cases of typhoid in immunized soldiers admitted to a French army hospital between July and November, 1916, is available. They had during this period 128 patients, of whom thirty-three had not been immunized at all, seventy-six had been immunized more or less completely against typhoid fever only, and nineteen had had an early vaccination with typhoid bacilli and a later one with either a mixed vaccine of typhoid and paratyphoid A and B bacilli, or with a vaccine of paratyphoid A and B bacilli. In all but eight cases of the 128, the diagnosis was based on positive blood cultures; and of the eight in which negative blood cultures were obtained, four were in patients who had had no immunization. Among the thirty-three nonvaccinated cases there were twenty of typhoid, nine of paratyphoid A and four of paratyphoid B fever; there were eight deaths, all typhoid fever patients, and all three diseases were more severe than in men who had been immunized. Of the seventy-six patients vaccinated with typhoid bacilli only, eighteen had typhoid fever, forty-four paratyphoid A, and fourteen paratyphoid B; there was but one death, a typhoid fever patient with intestinal hemorrhage. Of the patients, twenty-two had received three or four injections of typhoid vaccine less than sixteen months before their admission to the hospital; four of them had typhoid, twelve paratyphoid A and six paratyphoid B. Of the nineteen patients who received two courses of immunizing injections, Pagniez and Valléry-Radot tabulate seventeen, but refuse to draw any conclusions from this series as the number is not sufficiently large. There were five cases of typhoid, eleven of paratyphoid A and one of paratyphoid B. One patient, in the last list, aged 26, received in 1914, four injections of typhoid vaccine, and in 1916 four doses of typhoid and paratyphoid A and B vaccine. In the fall of 1916, this man was admitted to the hospital with a mild attack of typhoid.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

SILVER PROTEINATE "HEYDEN"—Argentum Proteinicum "Heyden."—Said to be identical with protargol. (See New and Nonofficial Remedies, 1918, p. 362.)

Actions and Uses.—See general articles, Silver Protein Compounds (N. N. R., 1918, p. 360).

Dosage.—See under protargol (N. N. R., 1918, p. 362).

Manufactured by the Heyden Chemical Works, New York. No U. S. patent or trademark.

Silver proteinate "Heyden" must conform with tests and have the properties described under protargol.

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[5] Pagniez, M. P., and Pasteur Valléry-Radot: Remarques sur les fièvres typhoides et paratyphoides chez les vaccinés et les non-vaccinés, d'après la statistique d'un service de typhoïdes (Juillet-Novembre, 1916), Ann. de méd., 1917, 4, 308.

MEDICAL EDUCATION IN THE UNITED STATES

ANNUAL PRESENTATION OF EDUCATIONAL DATA FOR 1918 BY THE COUNCIL ON MEDICAL EDUCATION

The tabulated statistics herewith presented are for the year ending June 30, 1918, and are based on reports received from the medical colleges or from other reliable sources. We take pleasure in acknowledging here the courtesy and cooperation of the officers of the colleges who have made the compilation of these complete statistics possible.

STATISTICS OF COLLEGES

Table 1, on pages 536-538, gives the colleges in session during 1917-1918; the population of the city; the rating given to the college in the latest classification of the Council on Medical Education; the number of students, men and women, registered during the year; the number of 1918 graduates, men and women; the number of graduates holding collegiate degrees; the number of teachers for each college; the number of weeks of actual work in the college year; the total fees for each year; the executive officer of the college, and the dates of beginning and ending of the next session. The figures in heavy-faced type show the totals by states. Beginning on page 554 are given essential facts concerning all medical colleges arranged by states.

HOME STATES OF MEDICAL STUDENTS

Table 2, on pages 540-541, shows from what states the students came who were in attendance at each medical college during the session of 1917-1918 The influence of the proximity of the medical school is seen in the fact that states having medical colleges contribute more students in proportion to the population than those which have no colleges. This is shown by the dark zone of figures running diagonally down the page. A comparison of this table with the large tables based on state board examinations,[1] which show the distribution of the alumni of each college, is interesting. The college that has widely distributed alumni usually has a student body from an equally large number of states.

The state furnishing the largest number of students this year was New York, with 2,232. Illinois contributed 1,048 and Pennsylvania 1,010. The next states, in the order of the number of students contributed, are: Massachusetts, 696; Ohio, 634; Missouri, 535; Texas, 446, and Michigan, 426. Four states had less than 20 each, these being Arizona, 11; New Mexico, 11; Nevada, 5, and Wyoming, 4. There were 113 students from Hawaii, Porto Rico and the Philippine Islands, and 390 students from foreign countries.

In Table 3, on page 542, the students enrolled in each college are shown by classes. This permits one to see whether the attendance at each college is increasing or decreasing. The total attendance for the first year was 4,283, as compared with 4,107 last year and 3,582 in 1916. The second year attendance was 3,521, as compared with 3,117 last year, and 3,094 in 1916. The enrolments for the third and fourth years, respectively, were 2,893 and 2,933, as compared with 2,866 and 3,674 last year. The freshmen, sophomore and junior class enrolments, therefore, show increases, respectively, of 176, 404 and 27 over the enrolments of the previous year. This indicates that the college enrolments have largely been readjusted under the higher entrance requirements and, as was expected, the enrolment of medical students is again on the increase.

TABLE 4.—MEDICAL COLLEGE ATTENDANCE

Year	Non-sectarian	Homeo-pathic	Eclectic	Physio-Med.	Nonde-script	Total
1880.........	9,776	1,220	830	...	...	11,826
1890.........	13,521	1,164	719	...	...	15,404
1900.........	22,710	1,909	522	...	...	25,171
1901.........	23,846	1,683	664	80	144	26,417
1902.........	24,878	1,617	765	91	150	27,501
1903.........	24,930	1,498	848	149	190	27,615
1904.........	23,662	1,309	1,014	123	234	28,142
1905.........	24,119	1,104	678	114	232	26,147
1906.........	23,116	1,085	644	110	249	25,204
1907.........	22,303	1,039	545	97	292	24,276
1908.........	20,936	891	479	90	206	22,602
1909.........	20,554	899	413	52	227	22,145
1910.........	20,136	867	455	49	19	21,526
1911.........	18,414	890	433	49	...	19,786
1912.........	17,277	827	308	...	...	18,412
1913.........	15,919	850	256	...	...	17,015
1914.........	15,438	794	270	...	...	16,502
1915.........	13,914	736	241	...	...	14,891
1916.........	13,121	638	263	...	...	14,022
1917.........	12,925	580	250	...	...	13,764
1918.........	12,727	540	138	...	225	13,630

NUMBER OF MEDICAL STUDENTS

The total number of medical students (Table 4) in the United States for the year ending June 30, 1918, excluding premedical, special and postgraduate students, was 13,630, a decrease of 134 below last year. This is the lowest decrease since 1905, when the general reduction in the number of medical students began. It is noteworthy, however (Table 12, page 544), that in the high grade (Class A) medical colleges the total enrolment of students shows an increase. Of the total number of students, 12,727 (93.4 per cent.) were in attendance at the nonsectarian (regular) colleges, 540 (4.0 per cent.) at the homeopathic, 138 (1.0 per cent.) at the eclectic, and 225 (1.6 per cent.) enrolled in three nondescript colleges. As indicated by the larger enrolments in the freshman, sophomore

(Continued on page 539)

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[1] THE JOURNAL A. M. A., State Board Number, April 13, 1918, pages 1174 to 1177 inclusive.

TABLE I.—STATISTICS OF MEDICAL COLLEGES IN THE UNITED STATES AND CANADA

Marginal Number	NAME AND LOCATON OF COLLEGE	Population of City where College is Located (Census Bureau Estimate of 1916)	Classification by Council on Medical Education	No. of Students Registered 1917-18		Graduates 1918		Grads. with A.B., B.S., or Ph.B	Number of Teachers	Weeks in College Year	Total Fees (Dollars)				Executive Officer	Session of 1918-19		Marginal Number
				Men	Women	Men	Women				1st year	2d year	3d year	4th year		Begins 1918	Ends 1919	
	ALABAMA			44	...	11	...	4										
1	University of Alabama School of Medicine, Mobile	58,221	A	44	...	11	...	4	42	32	165	160	160	185	T. H. Frazer, M.D., Dean	Oct. 3	June 4	1
	ARKANSAS			52	...	21	...	3										
2	University of Arkansas Medical Department, Little Rock	57,343	B	52	...	21	...	3	56	34	50	50	50	50	Morgan Smith, M.D., Dean	Sept. 16	June 4	2
	CALIFORNIA			425	45	76	10	10										
3	College of Medical Evangelists, Loma Linda	125	B	57	5	18	3	3	40	36	166	161	161	161	Newton Evans, M.D., President	Sept. 1	May 29	3
4	College of Physicians and Surgeons, Los Angeles	503,812	B	83	9	25	3	...	122	36	220	217	202	227	Charles W. Bryson, M.D., Dean	Sept. 3	June 12	4
5	Oakland College of Medicine and Surgery, Oakland[1]	198,604	C	15	2	3	...	...	...	...	...	...	...	...	......	......	......	5
6	College of Physicians and Surgeons of San Francisco	463,516	C	53	3	15	1	...	40	30	193	193	193	218	H. D'Arcy Power, M.D., Dean	Aug. 12	June 5	6
7	Hahnemann Medical College of the Pacific, San Francisco.—H.[2]	463,516	B	10	1	10	1	...	...	...	...	...	...	...	......	......	......	7
8	Leland Stanford Junior Univ. School of Med., San Francisco	463,516	A	72	10	5	2	7	72	34	200	155	150	150	William Ophüls, M.D., Dean	Oct. 1	June 17	8
9	University of California Medical School, San Francisco	463,516	A	135	15	...	...	...	137	34	200	155	150	150	Frank W. Lynch, M.D., Acting Secretary	Sept. 28	June 4	9
	COLORADO			73	4	6	2	7										
10	University of Colorado School of Medicine, Denver[3]	260,800	A	73	4	6	2	7	66	32	85	85	75	75	Charles N. Meader, M.D., Dean	Sept. 30	June 4	10
	CONNECTICUT			67	4	8	...	8										
11	Yale University School of Medicine, New Haven	149,685	A	67	4	8	...	8	84	35	205	200	200	210	George Blumer, M.D., Dean	Sept. 26	June 18	11
	DISTRICT OF COLUMBIA			283	7	56	1	35										
12	Georgetown University School of Medicine, Washington	363,980	A	69	...	17	...	13	90	34	190	175	175	175	George M. Kober, M.D., Dean	Sept. 24	June 11	12
13	George Washington University Medical School, Washington	363,980	A	102	5	12	1	...	95	31	175	175	175	175	W. C. Borden, M.D., Dean	Sept. 25	June 11	13
14	Howard University School of Medicine, Washington	363,980	A	112	2	27	...	22	38	32	140	130	130	137	Edward A. Balloch, M.D., Dean	Oct. 1	June 4	14
	GEORGIA			198	...	33	...	5										
15	Emory University School of Medicine, Atlanta	190,558	A	128	...	27	...	2	106	33	172	160	155	180	W. S. Elkin, M.D., Dean	Sept. 23	June 1	15
16	University of Georgia Medical Department, Augusta[3]	50,245	A	70	...	6	...	3	53	34	60	60	60	60	William H. Doughty, Jr., M.D., Dean	Sept. 18	June 5	16
	ILLINOIS			1603	92	294	19	105										
17	Chicago Coll. of M. and S., Sch. of Med. of Loyola Univ., Chicago	2,497,722	B	422	26	107	8	...	159	32	155	155	155	155	George E. Wyneken, M.D., Secretary	Oct. 1	May 31	17
18	Chicago Hospital College of Medicine, Chicago[4]	2,497,722	C	87	8	44	5	...	...	...	137	135	115	145	......	......	......	18
19	Hahnemann Medical College and Hospital of Chicago.—H	2,497,722	B	48	3	14	1	4	86	32	176	162	177	192	Joseph P. Cobb, M.D., Dean	June 3	Feb. 3	19
20	Northwestern University Medical School, Chicago	2,497,722	A	281	...	62	...	42	170	33	190	195	190	206	Arthur I. Kendall, M.D., Dean	Oct. 1	June 7	20
21	Rush Medical College (University of Chicago)	2,497,722	A	505	45	39	3	37	274	33	180	180	180	195	John M. Dodson, M.D., Dean	Oct. 1	June 14	21
22	University of Illinois College of Medicine, Chicago	2,497,722	A	260	10	28	2	22	104	32	165	160	150	165	William H. Browne, Secretary	Oct. 1	June 1	22
	INDIANA			208	7	35	...	28										
23	Indiana University School of Medicine, Indianapolis	271,708	A	208	7	35	...	28	163	34	100	100	130	130	Charles P. Emerson, M.D., Dean	Sept. 15	May 31	23
	IOWA			194	4	29	1	19										
24	State University of Iowa College of Medicine, Iowa City[3]	12,033	A	186	3	27	...	19	51	35	95	85	85	85	Lee Wallace Dean, M.D., Dean	Sept. 16	June 6	24
25	State Univ. of Iowa College of Homeo. Medicine, Iowa City.—H.	12,033	A	8	1	2	1	...	20	35	95	85	85	85	George Royal, M.D., Dean	Sept. 16	June 6	25
	KANSAS			138	7	18	...	11										
26	University of Kansas School of Medicine, Rosedale-Kansas City[3]	404,782	A	138	7	18	...	11	65	35	60	60	100	100	M. T. Sudler, M.D., Dean	Sept. 16	June 11	26
	KENTUCKY			99	...	16	...	2										
27	University of Louisville Medical Department, Louisville	238,910	A	99	...	16	...	2	112	35	175	176	180	183	Henry Enos Tuley, M.D., Dean	Sept. 24	June 5	27
	LOUISIANA			267	8	62	1	18										
28	Tulane University of Louisiana School of Medicine, New Orleans	371,747	A	267	8	62	1	18	131	35	200	200	200	230	Isadore Dyer, M.D., Dean	Sept. 23	June 4	28
	MAINE			54	...	18	...	8										
29	Bowdoin Medical School, Brunswick-Portland	68,867	A	54	...	18	...	8	55	31	130	126	110	105	Addison S. Thayer, M.D., Dean	Oct. 10	June 1	29
	MARYLAND			588	53	127	9	95										
30	Johns Hopkins University Medical Department, Baltimore	589,621	A	322	53	78	9	87	181	33	257	257	257	257	J. Whitridge Williams, M.D., Dean	Oct. 1	June 10	30
31	Univ. of Maryland Sch. of Med. and Coll. of P. and S., Baltimore	589,621	A	266	...	49	...	8	189	32	185	185	185	215	J. M. H. Rowland, M.D., Dean	Oct. 1	June 2	31

	MASSACHUSETTS			905	40	230	9	109										
32	Boston University School of Medicine, Boston[5]	750,476	A	15	13	13	2	5	60	32	175	162	160	180	John P. Sutherland, M.D., Dean	Oct. 3	June 4	32
33	College of Physicians and Surgeons, Boston[6]	750,476	O	47	...	14	...	...	...	...	...	...	...	...	....	....	....	33
34	Medical School of Harvard University, Boston	750,476	A	384	...	106	...	91	215	33	230	225	225	225	David L. Edsall, M.D., Dean	Sept. 23	May 31	34
35	Middlesex College of Medicine and Surgery, Cambridge.—N.[7]	112,981	C	81	...	25	...	...	...	...	250	250	250	250	....	....	....	35
36	Tufts College Medical School, Boston	750,476	A	315	27	72	7	10	124	33	175	161	155	155	Charles F. Painter, M.D., Dean	Sept. 23	May 29	36
	MICHIGAN			512	29	95	5	52										
37	University of Michigan Medical School, Ann Arbor[3]	14,979	A	312	27	61	5	50	99	35	115	105	105	115	Charles W. Edmunds, M.D., Assistant Dean	Oct. 1	June 26	37
38	University of Michigan Homeo. Med. School, Ann Arbor.—H.	14,979	A	36	...	14	...	...	20	35	115	105	105	115	W. B. Hinsdale, M.D., Dean	Oct. 1	June 26	38
39	Detroit College of Medicine and Surgery, Detroit	571,781	A	161	2	20	...	2	161	32	155	150	150	175	W. H. MacCraken, M.D., Dean	Oct. 12	June 7	39
	MINNESOTA			269	11	36	2	36										
40	University of Minnesota Medical School, Minneapolis	363,454	A	269	11	36	2	36	159	35	150	150	150	150	Elias P. Lyon, M.D., Dean	Sept. 17	June 12	40
	MISSISSIPPI			57	...	...	...	...										
41	University of Mississippi School of Medicine, Oxford*	2,014	A	57	...	...	...	...	18	31	122	122	...	...	W. S. Leathers, M.D., Dean	Sept. 18	June 3	41
	MISSOURI			755	19	210	7	44										
42	University of Missouri School of Medicine, Columbia*	12,103	A	73	5	...	...	...	25	31	73	15	...	...	Guy L. Noyes, M.D., Dean	Sept. 16	June 4	42
43	Eclectic Medical University, Kansas City.—E.[8]	297,847	C	32	2	15	2	...	...	...	...	...	...	...	....	....	....	43
44	Kansas City College of Medicine and Surgery, Kansas City.—N.[9]	297,847	°	95	1	22	1	...	...	...	150	150	150	150	D. R. Alexander, M.D., Dean	....	....	44
45	Kansas City University of Phys. and Surg., Kansas City.—N.[10]	297,847	C	40	5	12	...	...	...	...	150	150	150	150	A. L. McKenzie, D.O., Dean	....	....	45
46	National University of Arts and Sciences Med. Dept., St. Louis[11]	757,309	C	35	2	35	2	...	...	...	...	...	...	...	....	....	....	46
47	St. Louis College of Physicians and Surgeons, St. Louis[12]	757,309	C	68	4	38	2	...	40	32	110	110	110	165	Waldo Briggs, M.D., Dean	....	....	47
48	St. Louis University School of Medicine, St. Louis	757,309	A	276	...	58	...	18	121	32	175	175	175	175	Hanau W. Loeb, M.D., Dean	Oct. 1	June 1	48
49	Washington University Medical School, St. Louis	757,309	A	136	...	30	...	26	105	34	205	200	200	205	G. Canby Robinson, M.D., Acting Dean	Sept. 26	June 12	49
	NEBRASKA			280	6	45	1	24										
50	Lincoln Medical College, Lincoln.—E.[13]	46,515	O	15	1	3	...	...	...	...	...	...	...	...	....	....	....	50
51	John A. Creighton Medical College, Omaha	165,470	A	90	...	16	...	5	70	33	157	147	117	172	Hermann von W. Schulte, M.D., Dean	Sept. 23	May 31	51
52	University of Nebraska College of Medicine, Omaha	165,470	A	175	5	26	1	19	64	36	135	130	120	120	Irving S. Cutter, M.D., Dean	Sept. 20	May 26	52
	NEW HAMPSHIRE			31	...	...	...	...										
53	Dartmouth Medical School, Hanover*	2,075	A	31	...	...	...	...	12	36	172	173	...	...	John M. Gile, M.D., Dean	Sept. 19	June 18	53
	NEW YORK			2420	106	422	15	143										
54	Albany Medical College, Albany	110,199	A	50	1	11	...	1	60	34	195	180	165	165	Thomas Ordway, M.D., Dean	Sept. 23	June 9	54
55	University of Buffalo Department of Medicine, Buffalo	468,558	A	196	10	22	4	3	107	34	205	200	200	200	C. Sumner Jones, M.D., Dean	Sept. 23	June 6	55
56	Columbia University Coll. of Phys. and Surgs., New York City	5,602,841	A	580	9	113	...	80	261	33	265	251	250	275	Samuel W. Lambert, M.D., Dean	Sept. 25	June 5	56
57	Cornell University Medical College, New York City	5,602,841	A	150	36	28	4	31	178	34	190	185	185	200	Walter L. Niles, M.D., Acting Dean	Oct. 1	June 12	57
58	Fordham University School of Medicine, New York City	5,602,841	A	207	...	63	...	3	130	34	256	241	235	235	Joseph Byrne, M.D., Dean	Sept. 27	June 10	58
59	Long Island College Hospital, Brooklyn	1,928,734	A	339	6	46	...	1	128	33	255	250	250	275	Otto V. Huffman, M.D., Dean	Sept. 23	May 29	59
60	New York Homeopathic Med. Coll. and Flower Hospital.—H.	5,602,841	B	170	...	26	...	4	80	31	200	200	200	200	H. R. Barrows, Registrar	Sept. 24	May 21	60
61	New York Medical College and Hospital for Women.—H.[14]	5,602,841	B	....	27	...	4	...	...	...	...	...	...	...	....	....	....	61
62	University and Bellevue Hospital Medical College, New York City	5,602,841	A	191	...	92	...	4	146	33	225	225	225	225	Samuel A. Brown, M.D., Dean	Sept. 25	June 11	62
63	Syracuse University College of Medicine, Syracuse	155,624	A	117	8	21	3	16	85	33	210	210	210	220	John L. Heffron, M.D., Dean	Oct. 1	June 11	63
	NORTH CAROLINA			97	...	...	...	...										
64	University of North Carolina School of Medicine, Chapel Hill*	1,149	A	57	...	...	...	...	15	34	132	132	...	...	Isaac Hall Manning, M.D., Dean	Sept. 12	May 30	64
65	Leonard Medical School, Raleigh*	19,980	B	5	...	...	...	...	12	32	115	115	...	...	George H. Stoddard, M.D., Dean	Oct. 1	May 29	65
66	Wake Forest College School of Medicine, Wake Forest*	1,443	A	35	...	...	...	...	11	33	115	115	...	...	E. B. Earnshaw, Secretary	Sept. 3	May 30	66
	NORTH DAKOTA			28	2	...	...	...										
67	Univ. of North Dakota School of Med., University (Grand Forks)*	15,332	A	28	2	...	...	...	10	35	50	50	...	...	Harley E. French, M.D., Dean	Sept. 23	June 18	67
	OHIO			553	20	125	3	63										
68	Eclectic Medical College, Cincinnati.—E.	410,476	B	53	5	21	1	2	36	32	130	120	120	120	John K. Scudder, M.D., Secretary	Sept. 12	May 12	68
69	University of Cincinnati College of Medicine	410,476	A	137	5	21	2	11	156	34	150	150	150	170	Frank B. Cross, M.D., Secretary	Oct. 1	June 11	69
70	Western Reserve University School of Medicine, Cleveland	674,073	A	181	...	46	...	46	111	34	175	160	154	155	Carl A. Hamann, M.D., Dean	Sept. 26	June 12	70
71	Ohio State University College of Medicine, Columbus	214,878	A	116	8	23	...	3	92	36	152	152	152	152	F. L. Landacre, M.D., Acting Dean	Sept. 17	June 17	71
72	Ohio State University College of Homeo. Med., Columbus.—H.	214,878	B	36	2	14	...	1	23	35	152	152	152	152	Claude A. Burrett, M.D., Dean	Sept. 17	June 12	72
	OKLAHOMA			72	4	13	...	7										
73	University of Oklahoma School of Med., Norman-Oklahoma City	92,943	B	72	4	13	...	7	65	34	58	40	20	20	Leroy Long, M.D., Dean	Sept. 17	June 3	73
	OREGON			68	7	19	2	7										
74	University of Oregon Medical School, Portland	295,463	A	68	7	19	2	7	82	32	150	150	150	150	K. A. J. MacKenzie, M.D., Dean	Oct. 1	May 31	74
	PENNSYLVANIA			1307	74	270	16	109										
75	*Hahnemann Medical College and Hospital of Philadelphia.—H.*	1,709,518	A	140	...	12	...	1	84	32	180	180	180	195	William A. Pearson, M.D., Dean	Sept. 30	May 30	75
76	Jefferson Medical College of Philadelphia	1,709,518	A	466	...	102	...	15	173	34	215	210	210	210	Ross V. Patterson, M.D., Dean	Sept. 23	June 7	76
77	Temple University Department of Medicine, Philadelphia	1,709,518	B	103	3	19	3	1	93	34	175	170	160	161	Frank C. Hammond, M.D., Dean	Sept. 16	June 1	77
78	University of Pennsylvania School of Medicine, Philadelphia	1,709,518	A	461	18	113	2	64	204	35	233	210	210	214	William Pepper, M.D., Dean	Sept. 27	June 18	78
79	Woman's Medical College of Pennsylvania, Philadelphia	1,709,518	A	...	43	...	8	6	58	34	197	176	183	180	Martha Tracy, M.D., Dean	Sept. 18	June 4	79
80	University of Pittsburgh School of Medicine, Pittsburgh	579,090	A	137	10	24	3	22	130	34	265	250	250	255	Ogden M. E. Edwards, M.D., Dean	Sept. 23	June 6	80

E.—Eclectic; H.—Homeopathic; N.—Nondescript.

** Gives only the first two years of the medical course.*

TABLE 1.—STATISTICS OF MEDICAL COLLEGES IN THE UNITED STATES AND CANADA—(Concluded)

Marginal Number	NAME AND LOCATON OF COLLEGE	Population of City where College is Located (Census Bureau Estimate of 1916)	Classification by Council on Medical Education	No. of Students Registered 1917-18		Graduates 1918		Grads. with A.B., B.S., or Ph.B.	Number of Teachers	Weeks in College Year	Total Fees (Dollars)				Executive Officer	Session of 1918-19		Marginal Number
				Men	Women	Men	Women				1st year	2d year	3d year	4th year		Begins 1918	Ends 1919	
	SOUTH CAROLINA			55	...	9	...	4										
81	Medical College of the State of South Carolina, Charleston	60,734	A	55	...	9	...	4	71	33	150	150	150	115	Robert Wilson, Jr., M.D., Dean	Sept. 27	June 5	81
	SOUTH DAKOTA			17	2	...	...	...										
82	University of South Dakota College of Medicine, Vermilion*	2,376	A	17	2	...	...	...	10	35	60	60	...	...	Christian P. Lommen, B.S., Dean	Sept. 17	June 11	82
	TENNESSEE			423	3	124	2	25										
83	University of Tennessee College of Medicine, Memphis[3]	148,995	A	82	2	17	1	5	111	34	107	102	102	127	A. H. Wittenborg, M.D., Dean	Sept. 21	June 4	83
84	University of West Tennessee Coll. of Med. and Surg., Memphis	148,995	O	21	...	8	...	...	22	32	65	65	65	75	M. V. Lynk, M.D., Dean	Sept. 23	May 20	84
85	Meharry Medical College, Nashville	117,057	B	205	1	76	1	14	24	30	70	70	70	80	G. W. Hubbard, M.D., President	Oct. 8	May 22	85
86	Vanderbilt University School of Medicine, Nashville	117,057	A	115	...	23	...	6	79	33	156	150	150	175	B. F. Hambleton, M.D., Acting Dean	Sept. 30	June 11	86
	TEXAS			317	16	62	1	15										
87	Baylor University College of Medicine, Dallas	124,527	A	63	5	13	...	...	58	32	160	155	155	150	Edward H. Cary, M.D., Dean	Sept. 30	May 29	87
88	Fort Worth School of Medicine, Fort Worth[15]	104,562	B	56	...	10	...	...	...	...	...	...	...	...	...	...	...	88
89	University of Texas Department of Medicine, Galveston	41,863	A	198	11	39	1	15	40	32	78	48	31	18	William S. Carter, M.D., Dean	Oct. 1	May 31	89
	UTAH			33	1	...	...	...										
90	University of Utah School of Medicine, Salt Lake City*[3]	117,399	A	33	1	...	...	...	23	33	95	95	...	...	Perry G. Snow, M.D., Dean	Sept. 30	June 7	90
	VERMONT			105	...	22	...	5										
91	University of Vermont College of Medicine, Burlington	21,432	A	105	...	22	...	5	38	32	145	145	145	170	H. O. Tinkham, M.D., Dean	Oct. 9	June 4	91
	VIRGINIA			239	...	65	...	21										
92	Medical College of Virginia, Richmond	156,687	A	139	...	43	...	16	132	36	169	169	169	201	Stuart McGuire, M.D., Dean	Sept. 18	June 5	92
93	University of Virginia Department of Medicine, Charlottesville	12,500	A	100	...	22	...	5	35	36	150	150	150	150	Theodore Hough, M.D., Dean	Sept. 12	June 11	93
	WEST VIRGINIA			33	3	...	...	...										
94	West Virginia University School of Medicine, Morgantown*	12,974	A	33	3	...	...	...	12	34	50	40	...	...	John N. Simpson, M.D., Dean	Sept. 23	June 11	94
	WISCONSIN			180	7	7	...	2										
95	*University of Wisconsin Medical School, Madison**[3]	30,699	A	114	6	...	...	...	28	35	70	70	...	...	*C. R. Bardeen, M.D., Dean*	*Oct. 1*	*June 25*	*95*
96	Marquette University School of Medicine, Milwaukee	436,535	A	66	1	7	...	2	81	36	195	195	195	225	L. F. Jermain, M.D., Dean	Sept. 17	June 17	96
	CANADA[16]			1638	84	266	4	39										
97	University of Alberta Faculty of Medicine, Strathcona, Alta.†	5,579	..	39	9	...	...	...	19	30	88	88	...	...	Cecil E. Race, A.B., Registrar	Oct. 1	May 15	97
98	Dalhousie University Faculty of Medicine, Halifax, N. S.	46,619	B	66	11	7	...	1	36	32	110	120	120	126	D. Fraser Harris, M.D., Secretary	Oct. 1	May 29	98
99	Queen's University Faculty of Medicine, Kingston, Ont.	18,874	B	180	...	22	...	5	49	33	115	115	115	115	J. C. Connell, M.D., Dean	Sept. 30	June 6	99
100	University of Toronto Faculty of Medicine, Toronto, Ont.	376,538	A	471	51	70	4	9	205	33	150	150	150	150	C. K. Clarke, M.D., Dean	Sept. 24	June 1	100
101	Western University Faculty of Medicine, London, Ont.	46,300	B	68	...	11	...	1	51	32	115	115	115	140	H. A. McCallum, M.D., Dean	Oct. 1	May 30	101
102	McGill University Faculty of Medicine, Montreal, Que.	470,480	A	361	4	62	...	10	174	32	174	174	174	204	John W. Scane, M.D., Registrar	Oct. 1	May 30	102
103	Montreal School of Medicine and Surgery, Montreal, Que.	470,480	B	231	...	43	...	...	80	36	118	126	126	138	L. D. Mignault, M.D., Secretary	Oct. 3	June 30	103
104	Laval University Faculty of Medicine, Quebec, Que.	78,190	B	103	...	19	...	10	35	3	90	90	90	90	Edwin Turcot, M.D., Dean	June 4	Dec. 18	104
105	University of Manitoba, Manitoba Medical College, Winnipeg	136,035	B	119	9	32	...	3	59	29	160	160	160	160	S. Willis Prowse, M.D., Dean	Oct. 1	May 9	105

E.—Eclectic; H.—Homeopathic; N.—Nondescript.

* Gives only the first two years of the medical course.

† Gives the first three years of the five-year medical course.

1. College reported closed.

2. Has just graduated its last class. Discontinued when elective chairs in homeopathic materia medica, therapeutics and practice were established in the University of California Medical School.

3. Fees given are for residents of the state. For nonresidents amounts should be added for each year in the several states as follows: Colorado, $25; Georgia, $100; Iowa, $15; Kansas, $20 (for the first two years only); Michigan, $20 (and $25 extra the first year for matriculation); Tennessee, $50; Utah, $25, and Wisconsin, $121.

4. *Since July 1, 1917, has not been recognized by the Illinois Department* of Registration and Education. *It is reported not recognized* also by the licensing boards of 36 other states.

5. This school states that it is no longer a sectarian institution.

6. Figures given are approximate. Reported not recognized by the licensing boards of 37 states.

7. Has been closely related to an osteopathic college and has granted liberal advanced standing for work done in osteopathy. Reported not recognized by the licensing boards of 31 states.

8. College reported closed.

9. This college was an offshoot of the Eclectic Medical University although it is reported as not recognized as an eclectic institution by the National Eclectic Association. It is reported not recognized by the Missouri State Board of Health and by the licensing boards of 31 other states. Under these circumstances it cannot be rated higher than Class C, pending an inspection which it has refused.

10. This college was formerly the Central College of Osteopathy. In 1917 amended its charter so as to grant degrees in medicine; then took the name of Central College Medical Department, and recently assumed its present title. *Is reported not recognized by the licensing boards of Missouri and 27 other states.*

11. College reported closed.

12. The Missouri State Board of Health states that recognition has just been withdrawn from this college. It is reported also to be not recognized by the licensing boards of 34 other states.

13. Reported not recognized by the licensing boards of Nebraska and of 31 other states.

14. It is reported that *the college has been abolished and its teaching faculty dismissed.* A new charter has been asked for.

15. College reported closed.

16. In Canada the entrance requirement to all medical schools is a secondary school education. The first year of the five-year course is devoted largely to courses in physics, chemistry and biology, which, in the United States, are required to have been completed in one or two years of premedical college work. Their courses may, therefore, be considered the equivalent of medical schools in the United States which require one year of college work for admission. On a basis similar to that of Canada, 82 of the medical schools of the United States would be considered as giving a six-year medical course — six years of collegiate work based on a four-year high school education.

(Continued from page 535)

and junior classes, the enrolment of medical students has about reached its lowest ebb under the higher entrance requirements.

NUMBER OF MEDICAL GRADUATES

The total number of graduates for the year ending June 30, 1918, was 2,670, a decrease of 709 below 1917. There were 137 other students who completed the four year medical course, whose diplomas are withheld pending completion of the hospital internship. The number of graduates from the nonsectarian colleges was 2,454, or 680 less than last year. The number from the homeopathic colleges was 114, or 66 less than last year, and from the eclectic colleges there were 42 graduates, or 23 less than last year.. The three nondescript colleges had 60 graduates.

TABLE 5.—MEDICAL COLLEGE GRADUATES

Year	Non-sectarian	Homeo-pathic	Eclectic	Physio-Med.	Nonde-script	Total
1880.........	2,673	380	188	..	..	3.241
1890.........	3.853	380	221	..	..	4.454
1900.........	4,715	413	86	..	..	5.214
1901.........	4,879	387	148	18	12	5.444
1902.........	4,508	336	138	16	11	5.009
1903.........	5,088	420	149	24	17	5,698
1904.........	5,190	371	146	20	20	5,747
1905.........	5,126	276	153	22	23	5,600
1906.........	4,841	286	186	22	29	5,364
1907.........	4,591	225	121	11	32	4,980
1908.........	4,370	215	116	12	28	4,741
1909.........	4,163	209	84	15	44	4,515
1910.........	4,113	183	114	16	14	4,440
1911.........	4,006	152	110	5	..	4,273
1912.........	4,206	185	92	..	..	4,483
1913.........	3,679	209	93	..	..	3,981
1914.........	3,370	154	70	..	..	3,594
1915.........	3,286	195	55	..	..	3,536
1916.........	3,274	166	78	..	..	3,518
1917.........	3,134	180	65	..	..	3,379
1918.........	2,454	114	42	..	60	2,670*

* Altogether 2,807 students successfully completed the courses of the senior year. There were 22 of these at the University of California, 77 at Rush Medical College, and 38 at the University of Minnesota from whom the degree has been withheld pending completion of the hospital internship.

GRADUATES HOLDING DEGREES IN ARTS

Of the 2,670 medical graduates, 1,024 were reported to hold also degrees in arts or science This total includes those taking the combined courses in arts or science and medicine. This year 38.4 per cent. of all graduates held collegiate degrees, as compared with 32.5 per cent. last year, 26.9 per cent. in 1916, and 24.3 per cent. in 1915. This increase is what was expected under the general adoption by medical schools of the entrance requirements of two years of college work. In 1910 it is noteworthy that only 15.3 per cent. of the graduates showed this evidence of higher preliminary qualifications. Of the 2,454 nonsectarian school graduates, 1,007, or 41.0 per cent., were reported to have baccalaureate degrees; of the homeopathic graduates 15, or 13.2 per cent., were so reported, and of the eclectic graduates this year none was reported as holding such a degree. As will be noted by referring to Table 11, of the 1,024 graduates holding baccalaureate degrees, 143—the largest number—came from the New York colleges. Last year Massachusetts furnished the largest quota, and in 1915 and previous years the Illinois colleges were in the lead. Massachusetts and Pennsylvania each furnished 109 this year, followed by Illinois with 105 and Maryland with 95 The percentage of graduates holding collegiate degrees is rapidly increasing and will continue to increase, since most medical schools are now requiring two years of college work for admission, which brings more students in the combined course for the B.S. and M.D. degrees.

TABLE 6.—MEDICAL GRADUATES WITH LIBERAL ARTS DEGREES

Year	Nonsectarian			Homeopathic			Eclectic			Totals		
	Graduates	A.B., B.S.	Per Cent.	Graduates	A.B., B.S.	Per Cent.	Graduates	A.B., B.S.	Per Cent.	Graduates	A.B., B.S.	Per Cent.
1910.......	4,113	661	16.1	183	13	7.1	114	3	2.6	4,440	680	15.3
1911.......	4,006	683	17.0	152	18	11.8	110	4	3.6	4,273	705	16.5
1912.......	4,206	744	17.7	185	15	8.1	92	4	4.3	4,483	763	17.0
1913.......	3,679	732	19.9	209	20	9.6	93	1	1.1	3,981	753	18.9
1914.......	3,370	794	23.5	154	7	4.5	70	6	8.6	3,594	807	22.5
1915.......	3,286	839	25.5	195	16	8.2	55	3	5.5	3,536	858	24.3
1916.......	3,274	928	28.3	166	20	12.0	78	0	0.0	3,518	948	26.9
1917.......	3,134	1078	31.1	180	19	10.5	65	2	3.1	3,379	1099	32.5
1918*......	2,454	1007	41.0	114	15	13.2	60	0	0.0	2,670	1024	38.4

* None of the 60 graduates of nondescript colleges is reported as having a collegiate degree.

WOMEN IN MEDICINE

During the past year there were 581 women studying medicine, or 29 less than last year, but 15 more than in 1916. The percentage of women to all medical students is 4.3, a percentage approximating those of previous years. This is true also in regard to women graduates. There were 106 women graduates this year, 47 less than last year and 28 less than in 1916. Of all the women matriculants, a smaller percentage

TABLE 7.—WOMEN IN MEDICINE

Year	Total Women Students	Percentage of All Students, Both Sexes	Total Women Graduates	Percentage of Graduates, Both Sexes	Women's Colleges	Students	Percentage of All Women Students	Graduates	Percentage of All Women Graduates	Co-ed. Schools	Students	Percentage of All Women Students	Graduates	Percentage of All Women Graduates
1904	1,129	4.3	244	4.0	3	183	16.2	56	23.0	97	946	83.8	198	77.0
1905	1,073	4.1	219	4.0	3	221	20.6	54	24.5	96	852	79.4	165	75.5
1906	895	3.5	233	4.3	3	189	21.0	33	14.1	90	706	79.0	200	85.9
1907	928	3.8	211	4.2	3	210	22.6	39	18.5	86	718	77.4	172	81.5
1908	835	3.7	185	3.9	3	186	22.3	46	24.9	88	649	77.7	139	75.1
1909	921	4.2	162	3.7	3	169	18.4	33	20.3	91	752	81.6	129	79.7
1910	907	4.2	157	3.5	3	155	17.1	41	26.1	82	752	82.9	116	73.9
1911	680	3.4	159	3.7	2	134	19.7	36	22.6	74	546	80.3	123	77.4
1912	679	3.2	142	3.2	2	143	21.1	32	22.5	64	536	78.9	110	77.5
1913	640	3.8	154	3.8	2	138	21.6	33	21.4	55	502	78.6	121	78.6
1914	631	3.8	121	3.4	2	135	21.4	25	20.7	54	496	78.6	96	79.3
1915	592	4.0	130	3.7	2	116	19.6	38	29.2	53	462	80.4	92	70.8
1916	566	4.0	134	3.8	2	102	18.0	28	20.0	51	464	82.0	106	80.0
1917	610	4.5	153	4.5	2	81	13.3	29	18.9	56	529	86.7	124	81.1
1918	581	4.3	106	4.0	2	70	12.0	12	11.3	60	511	87.9	94	88.7

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TABLE 2.—DISTRIBUTION OF

Marginal Number	NAME OF COLLEGE	1 Alabama.......140	2 Arizona.......11	3 Arkansas.......97	4 California.....442	5 Colorado.......118	6 Connecticut....230	7 Delaware.......26	8 Dist. of Col.....90	9 Florida.......51	10 Georgia.......260	11 Idaho.......33	12 Illinois.......1,018	13 Indiana.......245	14 Iowa.......352	15 Kansas.......290	16 Kentucky.......119	17 Louisiana.......151	18 Maine.......80	19 Maryland.......102	20 Massachusetts..606	Marginal Number
1	University of Alabama School of Medicine	41												1				1				1
2	University of Arkansas Medical Department	1		39			1										2	1				2
3	College of Medical Evangelists		2		19	3				1		1	2	2	1	3						3
4	College of Physicians and Surgeons, Los Angeles				86								1									4
5	Oakland College of Medicine and Surgery*				17																	5
6	College of Physicians and Surgeons of San Francisco		1		48																	6
7	Hahnemann Medical College of the Pacific*				8																1	7
8	Leland Stanford Junior University School of Medicine				59	1						1		1	1			1			1	8
9	University of California Medical School				131							1		2		1						9
10	University of Colorado School of Medicine					70						1				2						10
11	Yale University School of				1		47						2								3	11
12	Georgetown University Sch						5		22					1	1				1	3	3	12
13	George Washington University Medical School	1					1		37				1							5	3	13
14	Howard University School o	3		2				1	14	3	1		3		1		5			8		14
15	Emory University School of	12								2	94				1		2	1				15
16	University of Georgia Medica										67											16
17	Chicago Coll. of M. & S., Sch. of Med. of Loyola Univ.	2			1	3	5		1	3	3	1	244	9	9	6	6		2	4	4	17
18	Chicago Hospital College of Medicine*												95									18
19	Hahnemann Med. College and Hosp. of Chicago.—H.						1						14	7	6	3	1					19
20	Northwestern University Medical School			3	3	4				2		1	124	10	15	12	1	1				20
21	Rush Medical College (University of Chicago)		2	1	8	5	1			1		3	233	20	25	35	3	1				21
22	University of Illinois College of Medicine		1		5	2					1		165	3	23	3	1					22
23	Indiana University School of Medicine												3	207	1							23
24	State University of Iowa College of Medicine				1	1						3	3		168	1						24
25	State University of Iowa College of Homeo. Med.—H.														8							25
26	University of Kansas School of Medicine	1														137						26
27	University of Louisville Medical Department			2		1				3	1	1	5	13			39				1	27
28	Tulane University of Louisiana School of Medicine	29	1	12						9	11			2		3	1	117				28
29	Bowdoin Medical School						3												36		7	29
30	Johns Hopkins University Medical Department	5		3	9	6	12		3	1	10		6	7	4	1	7	1	3	64	12	30
31	Univ. of Maryland Sch. of Med. and Coll. of P. & S.	3					7	6	3	3	1						3			93	5	31
32	Boston University School of Medicine							1			1					1			3		27	32
33	College of Physicians and Surgeons, Boston†																				47	33
34	Medical School of Harvard University	1	1	1	5	8	15		1	3	9	2	8	7	3	1			15		155	34
35	Middlesex College of Medicine and Surgery.—N.*																				84	35
36	Tufts College Medical School						13				1		1			1			6		274	36
37	University of Michigan Medical School	1	1		2				3	1	1	2	10	13	3	1				1	1	37
38	University of Michigan Homeo. Medical School.—H.				2								1	1								38
39	Detroit College of Medicine and Surgery				1												1					39
40	University of Minnesota Medical School				2							1	2		11					1		40
41	University of Mississippi School of Medicine	1			1													1				41
42	University of Missouri School of Medicine*			1												1						42
43	Eclectic Medical University, Kansas City.—E.*															12						43
44	Kansas City College of Medicine and Surgery.—N.*			9												25						44
45	Kansas City Univ. of Physicians and Surgeons.—N.																					45
46	National University of Arts and Sciences Med. Dept.			2	1							1	8		1		2					46
47	St. Louis College of Physicians and Surgeons*			2									10									47
48	St. Louis University School of Medicine	1	1		12	1					1		46	8	25	16	1	2				48
49	Washington University Medical School			1		4						1	16	2	3	9						49
50	Lincoln Medical College.—E.†														4							50
51	John A. Creighton Medical College														14	4						51
52	University of Nebraska College of Medicine					1						1			9	2						52
53	Dartmouth Medical School						1						1						1		8	53
54	Albany Medical College						1							1							5	54
55	University of Buffalo Department of Medicine				1	1					1					1						55
56	Columbia University College of Phys. and Surgs.	1	1			2	33			1	13	2	1	2					1		11	56
57	Cornell University Medical College				3		5				2		1	1	1	1			1		1	57
58	Fordham University School of Medicine						18														6	58
59	Long Island College Hospital						2														3	59
60	New York Homeo. Med. Coll. and Flower Hosp.—H.*				1		5												1			60
61	New York Medical College and Hosp. for Women.—H.																					61
62	University and Bellevue Hospital Medical College				2		13				1		1		1	1					2	62
63	Syracuse University College of Medicine																					63
64	University of North Carolina School of Medicine									2	1											64
65	Leonard Medical School	1									1										1	65
66	Wake Forest College School of Medicine																	1			1	66
67	University of North Dakota School of Medicine											1										67
68	Eclectic Medical College, Cincinnati.—E.										1		4	4	1	1	9		1			68
69	University of Cincinnati College of Medicine				1								2	7			17					69
70	Western Reserve University School of Medicine					1			1			1	3	4	2	1	1					70
71	Ohio State University College of Medicine													2			1					71
72	Ohio State University College of Homeo. Med.—H.													1			1					72
73	University of Oklahoma School of Medicine	1		1						1								1				73
74	University of Oregon Medical School																					74
75	Hahnemann Med. Coll. & Hosp. of Philadelphia.—H.						2	4												3	1	75
76	Jefferson Medical College of Philadelphia	1		1	2	2	15	8		1	1	3	3	1	1	1			2	2	11	76
77	Temple University Department of Medicine										2											77
78	University of Pennsylvania School of Medicine	1			5	1	6	5	1	1	3	1	5	3	6	1	1		3	5	4	78
79	Woman's Medical College of Pennsylvania	1			2		3						1								1	79
80	University of Pittsburgh School of Medicine										1				1						1	80
81	Medical College of the State of South Carolina									1												81
82	University of South Dakota College of Medicine												1	1								82
83	University of Tennessee College of Medicine	1		1						2		1				1	1	2			1	83
84	University of West Tennessee Coll. of Med. and Surg.	1		1							3		1					2				84
85	Meharry Medical College	13		11					1	3	23		10	1		1	5	10				85
86	Vanderbilt University School of Medicine	12		5	2	1				4			2				3	4				86
87	Baylor University College of Medicine				1					1	1						1	1				87
88	Fort Worth School of Medicine*																	1				88
89	University of Texas Department of Medicine	1									1							1	1			89
90	University of Utah School of Medicine											2										90
91	University of Vermont College of Medicine						13				1								3		11	91
92	Medical College of Virginia						1		1											1		92
93	University of Virginia Department of Medicine	3					1	1	2	1	2			1			2	1		2		93
94	West Virginia University School of Medicine														1							94
95	University of Wisconsin Medical School											1	9		1	1	2					95
96	Marquette University School of Medicine																					96
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	

E.—Eclectic; H.—Homeopathic; N.—Nondescript. * Figures exact; distribution approximate. † Figures and distribution approximate.

Marginal Number	21 Michigan.......427	22 Minnesota......312	23 Mississippi......110	24 Missouri........535	25 Montana..........37	26 Nebraska..........267	27 Nevada..............5	28 New Hampshire..53	29 New Jersey......316	30 New Mexico.......11	31 New York.....2,222	32 North Carolina.257	33 North Dakota...63	34 Ohio..............631	35 Oklahoma.........98	36 Oregon............91	37 Pennsylvania.1,010	38 Rhode Island....73	39 South Carolina.123	40 South Dakota...74	41 Tennessee.......214	42 Texas.............446	43 Utah..............105	44 Vermont..........59	45 Virginia.........264	46 Washington......97	47 West Virginia...127	48 Wisconsin.......307	49 Wyoming...........4	50 Philippines, etc.113	51 Foreign.........390	Totals........13,630	Marginal Number
1			1																													44	1
2			2									1					1			2	1	1										52	2
3	4	2			1	1				1	1				1	1				1	3					4		2			6	62	3
4										1																	1	2				92	4
5																1																17	5
6																							1			1					5	56	6
7																															2	11	7
8				1			2									2							2	1		5		1			3	82	8
9						1	1									6		1					3					1			2	150	9
10		1								1												1							1			77	10
11		1						2			7	1						1		1					2						3	71	11
12	1	1		1					1		7			3			12							1	2		1			3		69	12
13	1	1		1		1		1		1	7	2		3			13		1		2	2	1	1	9			1		4	7	107	13
14				2					5		3	9		1	2		9		5		2	6			12		2			3	12	114	14
15				1							1	5							2		2	1								2	2	128	15
16																			3													70	16
17	13	7	1	8		2			2		16	2	2	9			11	1		2	8	1	2		1	3	9	15		16	14	448	17
18																																95	18
19	5	3				1					1			2								1			1			2			3	51	19
20	10	13	2	8	1	8		1	1	1			10	6	1	1	1			6		1	1		1	10		19			3	281	20
21	19	22	1	15	5	15	2				2		12	17	3	6	2		1	10	1	8	15			7		27	1	5	7	550	21
22	5	13		4	1	2					4		2	3	2		1			1		1	5			4		12			6	270	22
23														1													1			1	1	215	23
24		3		2																1						1		1			4	189	24
25													1																			9	25
26				6																						1						145	26
27		1		6	1				1		1			4			1				5	4			2	1	5	1				99	27
28		1	30	4								6			1		1		2	1	1	32			2			1		4	4	275	28
29								4			1																				3	54	29
30	4	1		4	2	3			11	1	25	10	5	33		2	33	6	7	1	11	9	1		29	4	4	7			8	375	30
31				1				1	10		12	32		5			17	2	7						14		17			17	7	266	31
32								3			2	1		1	1		5	2	2					1						2	5	58	32
33																																47	33
34	2	6		4		2		6	5		28	5		10	2	3	11	19	3		1	6	4		1	3		9	1		18	384	34
35																																84	35
36	1	1						15	1		9			2			4	28						1		1				8	5	372	36
37	172	4		1	3	1			2		28			34	1		16	1		2	2	1	1	1		5	1	1		9	13	339	37
38	22	1									3		1	3		1											1					36	38
39	139	1							1		2			5			3	1		1											11	166	39
40	3	228			2						3		8							6					1	6		3			3	280	40
41			45	2																	1	1								3	2	57	41
42				75		1																										78	42
43				22																												34	43
44				62																												96	44
45				45																												45	45
46				16											2										2						2	37	46
47				60																												72	47
48	6	4		88																												276	48
49	1	3	1	70						1			2	1	2	1				1		3	3				1	6			4	136	49
50						12																										16	50
51		4		1	11	43					1					1				6			1			1		1		1	1	90	51
52	1			1		156				1										4									1		3	180	52
53								11	1		6						1							1								31	53
54									1		72													1								81	54
55	1										204			1			5															215	55
56	2	2		3				5	70	3	366	6		5		2	6	3	3		2	2	14	2	3	1	1	11			9	589	56
57						2			21		132			2			3	1						2	1			1			5	186	57
58									29		239						2	1													2	297	58
59									20		312													1				1			6	345	59
60	1									24		130					3					1		1							3	170	60
61											27																					27	61
62				1					49		396	3		2		1	3	3			2		2	1	1						5	491	62
63									1		116						1								2					2	3	125	63
64											1	49							4													57	64
65											1	1																				5	65
66												30							1						1						1	35	66
67		8											19																		2	30	67
68	1					6					1			47	1		2				1					1	7					88	68
69	3	1		1		1								89			4					1			2		7	3		1	2	142	69
70			1								1			139			9			2			3		1	1	4				6	181	70
71														116			1										3	1				124	71
72														32			4															38	72
73											1				68							1									2	76	73
74																60										15						75	74
75				1					14		5			4			100								1		1				4	140	75
76	1	5	3	7	4	2			26		11	44	1	13		1	213		10		3	4	8	1	4	7	10	8		15	10	466	76
77				1					8		6			1			80								2					2	4	106	77
78	2	1	4	1	2	3			31		10	27		1		2	268		4		7	4	7		9	10	6	3		4	21	479	78
79									5		6	6					15								1			1		1		43	79
80	1													5			138															147	80
81												1							52						1							55	81
82	2																			15												19	82
83			6									1									58	4				1	3			1		84	83
84											1	1			3						4	1			1		1				1	21	84
85	1		14	5		1					3	7		1	3		1		12		21	31			8						20	206	85
86			1	1								1			2				3		65	6			2						1	115	86
87																	1					56	1							3	2	68	87
88																						55										56	88
89				1							1	1					1				1	[illegible]						1		1	2	209	89
90																							29								3	34	90
91																								43						1	2	105	91
92											[illegible]	[illegible]		2			1		3		1				90		5			1	1	139	92
93			6								1	5					3		3		7	1			55		2				1	100	93
94																	1										34					36	94
95	1			2	1						1		1	2						1	1							94		1	1	120	95
96	1	3				1																						62				67	96
	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51		

Name of College	Enrolled During 1917-18				
	1st Yr.	2d Yr.	3d Yr.	4th Yr.	Total
University of Alabama School of Medicine	24	8	3	9	44
University of Arkansas Medical Department	17	6	6	23	52
College of Medical Evangelists	22	14	4	22	62
College of Phys. and Surgs., Los Angeles	24	8	32	28	92
Oakland College of Medicine and Surgery	6	4	3	4	17
College of Phys. and Surgs. of San Francisco	8	16	6	26	56
Hahnemann Medical College of the Pacific	...	...	...	11	11
Leland Stanford Junior Univ. School of Med.	22	14	25	21	82
University of California Medical School	74	31	20	22	150
University of Colorado School of Medicine	25	21	22	9	77
Yale University School of Medicine	24	25	14	8	71
Georgetown University School of Medicine	24	17	12	16	69
George Washington University Medical School	42	34	17	14	107
Howard University School of Medicine	22	34	27	31	114
Emory University School of Medicine	48	28	25	27	128
University of Georgia Medical Department	42	15	7	6	70
Chicago College of M. and S. (Loyola Univ.)	125	86	84	153	448
Chicago Hospital College of Medicine	23	23	...	49	95
Hahnemann Med. Coll. & Hosp. of Chicago.H.	7	8	19	17	51
Northwestern University Medical School	59	61	95	66	281
Rush Medical College (University of Chicago)	122	123	155	150	550
University of Illinois College of Medicine	98	91	51	30	270
Indiana University School of Medicine	83	63	32	37	215
State University of Iowa College of Medicine	60	56	46	27	189
State Univ. of Iowa Coll. of Homeo. Med.—H.	3	2	1	3	9
University of Kansas School of Medicine	69	38	21	17	145
University of Louisville Medical Department	47	18	18	16	99
Tulane University of Louisiana School of Med.	67	78	69	61	275
Bowdoin Medical School	9	9	18	18	54
Johns Hopkins University Medical Department	94	94	98	89	375
Univ. of Md. Sch. of Med. & Coll. of P. & S.	95	64	46	61	266
Boston University School of Medicine	16	15	9	18	58
College of Physicians and Surgeons, Boston*	12	13	6	16	47
Medical School of Harvard University	94	98	98	94	384
Tufts College Medical School	113	97	96	66	372
Middlesex College of Medicine and Surgery.—N.	27	21	11	25	84
University of Michigan Medical School	118	94	60	67	339
University of Michigan Homeo. Med. Sch.—H.	5	3	8	20	36
Detroit College of Medicine and Surgery	63	49	33	21	166
University of Minnesota Medical School	80	78	62	60	280
University of Mississippi School of Medicine	26	31	...	...	57
University of Missouri School of Medicine	43	35	...	...	78
Eclectic Medical University, Kansas City.—E.	13	7	4	10	34
Kansas City Coll. of Medicine and Surgery.—N.	26	20	23	27	96
Kansas City Univ. of Phys. and Surgs.—N.	8	13	12	12	45
National Univ. of Arts and Sciences Med. Dept.	...	...	...	37	37
St. Louis College of Physicians and Surgeons	8	13	11	40	72
St. Louis University School of Medicine	87	74	60	55	276
Washington University Medical School	28	27	49	32	136
Lincoln Medical College.—E.*	3	4	6	3	16
John A. Creighton Medical College	30	23	21	16	90
University of Nebraska College of Medicine	69	49	32	30	180
Dartmouth Medical School	19	12	...	...	31
Albany Medical College	33	22	13	13	81
University of Buffalo Department of Medicine	85	62	40	28	215
Columbia University Coll. of Phys. and Surgs.	213	114	148	114	589
Cornell University Medical College	70	55	29	32	186
Fordham University School of Medicine	97	73	64	63	297
Long Island College Hospital	125	108	72	40	345
N. Y. Homeo. Med. Coll. and Flower Hosp.—H.	50	51	40	29	170
New York Med. Coll. & Hosp. for Women.—H.	4	5	14	4	27
University and Bellevue Hospital Med. College	189	125	87	90	491
Syracuse University College of Medicine	38	40	23	24	125
University of North Carolina School of Med.	34	23	...	...	57
Leonard Medical School	1	4	...	...	5
Wake Forest College School of Medicine	21	14	...	...	35
University of North Dakota School of Medicine	18	12	...	...	30
Eclectic Medical College, Cincinnati.—E.	15	23	28	22	88
University of Cincinnati College of Medicine	51	39	28	24	142
Western Reserve University School of Medicine	51	44	42	44	181
Ohio State University College of Medicine	52	29	19	24	124
Ohio State Univ. College of Homeo. Med.—H.	11	4	7	16	38
University of Oklahoma School of Medicine	25	21	17	13	76
University of Oregon Medical School	23	15	16	21	75
Hahnemann Med. Coll. and Hosp. of Pa.—H.	61	36	31	12	140
Jefferson Medical College of Philadelphia	70	148	146	102	466
Temple University Department of Medicine	26	23	28	29	106
University of Pennsylvania School of Medicine	121	111	126	121	479
Woman's Medical College of Pennsylvania	18	10	7	8	43
University of Pittsburgh School of Medicine	51	42	28	26	147
Medical College of the State of South Carolina	19	15	11	10	55
University of South Dakota College of Med.	10	9	...	...	19
University of Tennessee College of Medicine	29	17	19	19	84
Univ. of West Tenn. College of Med. and Surg.	7	3	3	8	21
Meharry Medical College	45	37	40	84	206
Vanderbilt University School of Medicine	45	24	23	23	115
Baylor University College of Medicine	25	18	12	13	68
Fort Worth School of Medicine	16	14	14	12	56
University of Texas Department of Medicine	41	73	54	41	209
University of Utah School of Medicine	15	19	...	...	34
University of Vermont College of Medicine	39	23	21	22	105
Medical College of Virginia	33	30	24	52	139
University of Virginia Department of Medicine	27	23	27	23	100
West Virginia University School of Medicine	15	21	...	...	36
University of Wisconsin Medical School	63	57	...	...	120
Marquette University School of Medicine	28	17	15	7	67
Totals for 1918	4283	3521	2893	2933	13630
Totals for 1917	4107	3117	2866	3674	13764
Totals for 1916	3582	3094	3559	3727	14022

* Figures approximate.

(Continued from page 539)

were in attendance at the two medical colleges for women, while 511 (87.9 per cent.) were matriculated in the sixty coeducational colleges. From the two women's colleges there were 12 graduates, while 94 secured their degrees from coeducational colleges. This increase of women students in coeducational colleges is not surprising, since in recent years some of the largest and oldest medical schools, as Columbia, Tulane, the University of Pennsylvania and Harvard (and McGill University in Canada), have thrown open their doors to women.

NUMBER OF COLLEGES

Since June 30, 1917, two new medical colleges were reported, while eight colleges (mentioned on page 544) were closed by merger or otherwise. The present total number of medical colleges is ninety—six less than last year. Of the ninety colleges, 79 are nonsectarian (regular), 6 are homeopathic, 2 are eclectic and 3 are nondescript. Two of the nondescript and one of the eclectic colleges are not recognized by the licensing boards of the states (Missouri and Nebraska) in which they are located.

LENGTH OF TERMS

During the last eighteen years there has been a decided lengthening of college terms. This has reference to the weeks of actual work exclusive of holidays. Prior to 1904 the majority of colleges had sessions of twenty-eight weeks or less. For three years no colleges have had sessions shorter than twenty-nine weeks, and this year only two colleges reported sessions of thirty weeks Sessions of from thirty-three to thirty-six weeks were reported by fifty-nine, or 65.6 per cent., of all colleges.

TUITION AND OTHER FEES

Attention is called to Table 1, on page 536, to the amount charged by the various medical colleges per annum for tuition, matriculation, laboratory and graduation fees for each student. In Table 10, eighty-nine of the ninety colleges—from one Class C college the figures were not obtained—have been grouped according to the amount of fees charged and according to their classification by the Council on Medical Education in Classes A, B and C. Sixteen colleges charge fees of $100 or less per year; forty-three between $100 and $175, and thirty charge above $175. Of the sixteen colleges charging $100 or less, twelve (75 per cent.) are listed among Class A (acceptable) colleges[2] by the Council on Medical Education; three are Class B colleges and one is rated in Class C. Among the twelve Class A colleges having these low fees are the schools of medicine of the state universities of Colorado, Iowa, Michigan, Mississippi, Missouri, North Dakota, South Dakota, Texas and Utah. On the other hand, five colleges listed by the Council in Class C charge fees of from $100 to $175 per year for each student, and two exact fees between $175 and $250. Diplomas from Class C colleges are reported as not recognized by thirty-two state licensing boards.[3] No intelligent student would knowingly spend his time and money in a low-grade college, the diplomas of which are not recognized by many states, when in the same time and for even less money he could attend one of the best-equipped colleges, the diplomas of which are recognized everywhere. Although forty-two colleges listed in Class A charged fees ranging from $150 to $275 per year for each student, the actual expense for teaching that student in these colleges amounts to from two or three to several times these sums. In fact, accurate data secured from eighty-two medical colleges show that the average amount received each year from the individual student was $150, while the average amount actually expended in the training of that student for a year was $419! And the latter sum is much larger in the higher grade colleges since there were several colleges among the eighty-two which still apparently made profits from teaching medical students or which paid all expenses, including rents, or even erected new buildings out of the income from students' fees!

TABLE 8.—Medical Colleges

Year	Non-sectarian	Homeo-pathic	Eclectic	Physio-Med.	Nonde-script	Total
1850........	44	3	4	1	..	52
1860........	53	6	4	2	..	65
1870........	60	8	5	2	..	75
1880........	76	14	8	2	..	100
1890........	106	16	9	2	..	133
1900........	126	22	9	2	1	160
1901........	125	22	10	2	1	160
1902........	126	20	9	3	2	160
1903........	126	20	9	3	2	160
1904........	127	19	9	3	2	160
1905........	125	19	9	3	2	158
1906........	130	19	8	3	2	162
1907........	127	18	9	3	2	159
1908........	120	18	9	2	2	151
1909........	115	15	8	1	1	140
1910........	109	12	8	1	1	131
1911........	103	12	7	..	..	122
1912........	101	11	6	..	..	118
1913........	92	10	5	..	..	107
1914........	87	10	5	..	..	102
1915........	83	9	4	..	..	96
1916........	82	10	3	..	..	95
1917........	83	9	4	..	..	96
1918........	79	6	2	..	3	90

TABLE 9.—College Terms

Year	23 to 26 weeks		27 to 28 weeks		29 to 30 weeks		31 to 32 weeks		33 to 34 weeks		35 to 36 weeks		Over 36 weeks	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1901	58	36.5	42	26.4	8	5.0	26	16.4	4	2.5	18	11.3	3	1.9
1902	44	28.4	44	28.4	11	7.1	33	21.3	3	1.9	18	11.6	2	1.3
1903	33	21.4	46	29.9	15	9.7	37	24.0	2	1.3	19	12.4	2	1.3
1904	27	16.3	44	26.5	22	13.3	37	22.3	13	7.8	20	12.0	3	1.8
1905	15	0.4	35	21.8	12	7.5	44	27.5	13	8.1	28	23.8	3	1.9
1906	14	8.7	35	21.7	26	16 1	32	19.9	24	14.9	28	17.4	2	1.3
1907	6	3.7	27	16.8	26	16.1	42	26.1	29	18.0	29	18.0	2	1.3
1908	2	1.3	21	13.8	28	18.4	51	33.6	24	15.8	22	14.5	4	2.6
1909	4	2.8	17	11.6	23	16.4	51	34.9	18	12.3	30	20.5	3	2.0
1910	2	1.5	8	6.0	19	14.3	42	31.5	30	22.6	30	22.6	2	1.5
1911	..	....	6	5.0	16	13.3	37	30.8	32	26.7	28	23.4	1	0.8
1912	1	0.9	1	0.9	11	9.5	34	29.3	37	31.8	31	26.7	1	0.9
1913	..	....	3	2.8	5	4.7	29	27.4	41	38.7	27	25.5	1	0.9
1914	..	....	2	2.0	4	4.0	25	24.8	41	40.5	28	27.7	1	1.0
1915	..	....	1	1.0	5	5.3	22	23.2	36	37.9	30	31.6	1	1.0
1916	..	....	..	....	4	4.2	17	17.9	43	45.3	28	29.5	..	...
1917	..	....	..	....	1	1.0	15	15.6	46	47.9	31	32.3	..	...
1918*	..	....	..	....	2	2.2	23	25.6	37	41.1	22	24.4	..	...

* Information not furnished by six Class C colleges.

COLLEGES, STUDENTS AND GRADUATES BY STATES

Illinois formerly had the largest number of medical colleges (Table 11), but for the last two years the first place has been held by New York, where there are nine colleges. Illinois, Missouri and Pennsylvania have six each; California, Massachusetts and Ohio have five each and Tennessee has four colleges. Of Class C colleges, however, Missouri has three, Massachusetts has two, and there is one each in California, Illinois, Nebraska and Tennessee. In Illinois, Missouri and Nebraska, however, the Class C colleges are not recognized by the local state licensing boards. For the last three years New York has had the largest number of students enrolled, this year having 2,526, followed by Illinois with 1,695 and Pennsylvania with 1,381. New York leads also in the number of graduates, having reported 437, followed by Illinois with 313, Pennsylvania with 286 and Massachusetts with 239.

TABLE 10.—College Fees

Total Fees	Number of Colleges			
	Class A	Class B	Class C*	Total
$ 50 or less..........	3	2	..	5
50 to $ 75..........	4	1	1	6
75 to 100..........	5	..	..	5
100 to 125..........	7	2	1	10
125 to 150..........	8	..	4	12
150 to 175..........	17	4	..	21
175 to 200..........	10	1	1	12
200 or above.......	15	2	1	18
Totals...........	69	12	8	89

* Figures not obtainable from one Class C college.

Table 12 shows the students and graduates of the last six years grouped according to the rank of the colleges in the classification of the Council on Medical Education Note that during the six years the percentage of students enrolled in Class A colleges has increased from 65.4 to 84.5 and that for the last three years the total enrolment of students in attendance at these schools has also increased. Note on the other hand, both the percentages and the totals of students enrolled in Class B colleges have been reduced. The percentage of students in Class B colleges has been reduced from 24.4 to 10.9 and in Class C colleges from 10.2 to 4.5 Of graduates, also, the percentage in Class A colleges shows an increase; in Class B colleges it is nearly at a standstill, while in Class C colleges there has been a decrease, except for an increase this year, due to the organization of new medical schools of this variety. The reduction in the total numbers of students and graduates has been largely at the expense of the lower grade colleges, while the numbers of students and graduates in the higher grade colleges are actually increasing.

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[2] See Classification of Medical Colleges, page 552.

[3] See The Journal, April 13, 1918, page 1084, Table D, which shows in what states diplomas granted by various colleges are not recognized as an acceptable qualification for the license to practice.

TABLE 11.—Medical Colleges, Students and Graduates by States

State	Colleges		Students		Graduates		Graduates with B.S. or A.B.
	Total	Class C	Men	Women	Men	Women	
Alabama	1	..	44	....	11	....	4
[illegible]	1	..	52	....	21	....	3
[illegible]	5	1	425	45	76	10	10
[illegible]	1	..	70	4	6	2	7
[illegible]	1	..	67	4	8	....	8
Dist. of Columbia	3	..	283	7	56	1	35
Georgia	2	..	198	....	33	....	5
Illinois	6	1	1,603	92	294	19	105
Indiana	1	..	208	7	35	....	28
Iowa	2	..	194	4	29	1	19
Kansas	1	..	138	7	18	....	11
Kentucky	1	..	99	....	16	....	2
Louisiana	1	..	267	8	62	1	18
Maine	1	..	54	....	18	....	8
Maryland	2	..	588	53	127	9	95
Massachusetts	5	2	905	40	230	9	109
Michigan	3	..	512	29	95	5	52
Minnesota	1	..	269	11	36	2	36
Mississippi	1	..	57	....	....	....	....
Missouri	6	3	755	19	210	7	44
Nebraska	3	1	280	6	45	1	24
New Hampshire	1	..	31	....	....	....	....
New York	9	..	2,420	106	422	15	143
North Carolina	3	..	97	....	....	....	....
North Dakota	1	..	28	2	....	....	....
Ohio	5	..	553	20	125	3	63
Oklahoma	1	..	72	4	13	....	7
Oregon	1	..	68	7	19	2	7
[illegible]	6	..	1,307	74	270	16	109
[illegible]	1	..	55	....	9	....	4
[illegible]	1	..	17	2	....	....	....
Tennessee	4	1	423	3	124	2	25
Texas	2	..	317	16	62	1	15
Utah	1	..	33	1	....	....	....
Vermont	1	..	105	....	22	....	5
Virginia	2	..	239	....	65	....	21
West Virginia	1	..	33	3	....	....	....
Wisconsin	2	..	180	7	7	....	2
Totals	90	9	13,049	581	2,564	106	1,024

TABLE 12.—Students and Graduates According to Classification

Year	Students						Graduates					
	Colleges Rated in Class						Colleges Rated in Class					
	A	%	B	%	C	%	A	%	B	%	C	%
1913	11,122	65.4	4,158	24.4	1,735	10.2	2,539	63.8	1,050	26.4	392	9.8
1914	12,336	74.7	2,838	17.2	1,328	8.1	2,626	73.1	686	19.1	282	7.8
1915	11,314	76.0	2,668	17.9	909	6.1	2,629	74.4	688	19.4	219	6.2
1916	11,162	79.6	2,087	14.9	773	5.5	2,630	74.7	695	19.8	193	5.5
1917	11,317	82.2	1,761	12.8	686	5.0	2,577	76.3	648	19.2	154	4.5
1918	11,522	84.5	1,488	10.9	620	4.5	2,024	75.8	399	14.9	247	9.2

COLLEGE NOTES

Colleges Closed.—Eleven medical schools have been closed during the year. Three of these, the North Carolina Medical College, Charlotte, N. C.; the Medico-Chirurgical College of Philadelphia, and the Lincoln Memorial University Medical Department, Knoxville, Tenn., were reported in previous years as having merged. They have continued their existence, nominal or otherwise, however, until the classes still enrolled at the time of the merger should have been graduated. The last classes graduated this year. The other eight colleges reported closed are the Hahnemann Medical College of the Pacific, San Francisco, closed; the Oakland College of Medicine and Surgery, Oakland, Calif., suspended; Chicago College of Medicine and Surgery, Chicago, merged with Loyola University School of Medicine (retaining the joint title); the Jenner Medical College, Chicago, suspended; Eclectic Medical University, Kansas City, Mo., suspended; National University of Arts and Sciences, Medical Department, St. Louis, suspended; New York Medical College and Hospital for Women, New York, reported abolished, and the Fort Worth School of Medicine, Fort Worth, Texas, suspended.

New Colleges.—Two other colleges are added to the list, both of which are of a rather nondescript character. The Middlesex College of Medicine and Surgery, Cambridge, Mass., has been organized in a close relationship to a college of osteopathy and has granted very liberal advanced standing for work done in osteopathic schools. The other is the Kansas City University of Physicians and Surgeons, Kansas City, Mo., which was formerly the Central College of Osteopathy. In 1917 it amended its charter, securing the right to grant degrees. Most of the students in its classes are those whose previous work has been taken in the osteopathic school.

Special Items Concerning Medical Education

Arkansas.—The new Isaac Folsom Clinic, clinical building of the University of Arkansas Medical Department, has been completed at a cost of $35,000. The old medical schoolbuilding is being equipped as an isolation hospital at a cost of $6,000, this sum having been appropriated for the purpose by the state.

California.—The College of Physicians and Surgeons, Medical Department of the University of Southern California, Los Angeles, will require the hospital intern year for all students entering during 1918-19 and thereafter.

——The Pacific Medical College, Los Angeles, was a nondescript institution chartered in 1910 to grant M.D. degrees, but was reported not recognized either as a medical or a drugless college by the California State Board of Medical Examiners. The institution closed its doors about two years ago. Dr. C. B. Pinkham, secretary of the California Board, received word recently that diplomas were still being issued by the institution although no sessions were being held; and urged that state boards be on the lookout for such diplomas. At the California board's investigation the attorney for the college promised to take immediate steps to disincorporate the institution.

——The College of Medical Evangelists, during the last twelve months, has established a clinical department in Los Angeles. A city block has been purchased on which five buildings, including a 75-bed hospital, a dispensary, two dormitories and a hydrotherapy building, have been completed at a cost of approximately $100,000.

——A school for the intensive training of medical officers for the United States Army was established in San Francisco, March 15, 1918, under the direction of the medical faculties of the University of California and Stanford University.

Colorado.—The Colorado legislature voted a special appropriation of $150,000 a year for the next ten years to be used on buildings for the University of Colorado. The School of Medicine will secure new buildings from this fund.

Connecticut.—During the past year Yale University has secured an endowment of $2,500,000 for placing the departments of medicine, surgery, obstetrics and gynecology on a full-time clinical basis. A contract with the New Haven General Hospital gives the medical school complete control of the public wards.

——Yale University School of Medicine is doing its part in solving problems connected with the war. Its departments of physiology, pathologic chemistry and pathology, particularly, have been aiding the government in providing gas masks for the American troops and in conducting experiments leading to the reduction of fatalities from gas warfare.

Georgia.—Emory University School of Medicine has received $5,000 by the will of J. B. White, Augusta, to establish a camp for the treatment of tuberculosis.

Illinois.—Suit to recover the property of the Chicago College of Medicine and Surgery, valued at $300,000, was filed, March 19, 1918, by Mrs. Neva A. Brown, widow of the late Henry B. Brown, a chief owner of the Valparaiso University. The property was reported sold by Dr. J. Newton Roe to the Loyola University School of Medicine.

——The University of Illinois College of Medicine, Chicago, has adopted the quadrimester system by which each twelve months is divided into three terms of four months each. Under this arrangement students may begin the study of medicine at the beginning of any one of the three terms.

——The Illinois Department of Registration and Education has announced that after Oct. 15, 1918, no medical school will be recognized as in good standing in Illinois unless it requires for admission two years of work in an approved college of liberal arts and sciences or a fully equivalent education.

Indiana.—The Indiana University School of Medicine is erecting a new medical building on the property adjoining the Robert W. Long Hospital, Indianapolis, at an approximate cost of $400,000. The new building will have four or five stories and be of material harmonizing with the hospital buildings. About $150,000 of this sum will be realized from the sale of the old medical building. The medical school is continuing its sessions without vacations so as to hasten the graduation of physicians as a war measure.

Maryland.—The Maryland legislature, at its recent session, appropriated $25,000 annually for two years for the University of Maryland Medical School. The medical school has received as a gift the medical library and surgical instruments of the late Dr. Charles F. Bevan. The medical school also has voted to admit women students.

——Johns Hopkins Hospital has received $100,000 from the will of Jannie Gillender and $300,000 from the estate of James Buchanan Brady.

Massachusetts.—Harvard Medical School has voted to admit women students. This has been due to the heavy draft of the war on the medical profession.

——Boston University School of Medicine announces that it has become nonsectarian and from now on will offer courses in regular materia medica, therapeutics and practice.

Michigan.—The Detroit College of Medicine and Surgery has been taken over by the city of Detroit and placed under the control of the Board of Education. It will hereafter be maintained as a municipal institution.

Minnesota.—A Navy Hospital Corps Training School has been established in connection with the University of Minnesota Medical School. It was formally opened on Oct. 29, 1917, with an initial attendance of 100 men.

Missouri.—The Missouri State Board of Health reports that on July 8, 1918, recognition was withdrawn from the St. Louis College of Physicians and Surgeons.

Nebraska.—The University Hospital, erected on the campus of the College of Medicine of the University of Nebraska, was formally opened in October, 1917. It consists of 120 beds and was erected at a total cost, for the building and equipment, of $210,000. A new library building, an exact duplicate of the present library unit, is being erected on the medical campus which will house the departments of physiology, pharmacology and biochemistry. The funds were provided by the legislature which also appropriated $100,000 for maintenance for two years.

——The Nebraska State Board of Health has endorsed the action of the Advisory Board in refusing to permit graduates of the Lincoln Medical College to take the examination for the license to practice medicine in that state. It was stated that the medical school was not conforming with the requirements of the state law.

New York.—Columbia University College of Physicians and Surgeons has added a fifth clinical year to the medical course to be required of all students matriculating in and after September, 1918. The college has also opened its doors to women students. This was made possible by a gift of $50,000 from George W. Breckenridge, San Antonio, Texas, a gift of $5,000 from an association of women physicians, and $18,000 from other donations. A new building for the use of women students will be erected and additional laboratories provided.

——Cornell University Medical College has established a clinic for the functional reeducation of disabled soldiers, sailors and civilians. This constitutes practically a new branch of medicine.

——Long Island College Hospital, Brooklyn, has received $265,000 from the estate of Charles W. West.

——University of Buffalo Medical Department has begun a campaign for funds for a new medical building and laboratories. A gift of $10,000 has been obtained to go toward current expenses for the year.

——Fordham University School of Medicine has established a scholarship to be conferred on the senior student who has secured the highest general average during the first three years of the course. This scholarship will cover the student's tuition fees.

Ohio.—University of Cincinnati College of Medicine formally dedicated its new medical building on March 25, 1918. Subscriptions were previously raised for this building aggregating $555,000.

——Jan. 1, 1918, under the new charter for Cincinnati, all of the medical and scientific work of the Cincinnati General Hospital, was placed under the direction of the University of Cincinnati. The staff will be made up of members of the medical school faculty. Thus the medical school secures for teaching purposes the splendid clinical facilities of the hospital.

Oklahoma.—The legislature appropriated $200,000 for a state hospital at Oklahoma City to be under the control of the Oklahoma University School of Medicine. The building is rapidly approaching completion. The School of Medicine has completed a new chemistry building at Norman at a cost of $33,000.

Oregon.—On May 1, 1918, the University of Oregon Medical School dedicated Mackenzie Hall, the first unit of the new group of medical buildings. The building was erected at a cost of $117,000. It is on the new campus of 21 acres which provides space not only for other medical school buildings, but also for hospital sites.

Pennsylvania.—The University of Pennsylvania has received $50,000 from the will of Dr. William C. Goodell. The board of review has awarded the university damages of $714,000 for the old Medico-Chirurgical College and Hospital property taken by the city to provide space for the new parkway. The Medico-Chirurgical property had been transferred to the University of Pennsylvania with the merger two years ago.

——The Woman's Medical College of Pennsylvania has arranged four special lecture courses, these being on (*a*) reconstructive work in the devastated villages of Europe; (*b*) personal and public hygiene; (*c*) laboratory technic to prepare for routine work in war hospitals, and (*d*) nutrition and dietetics.

——The University of Pittsburgh School of Medicine is receiving $100 annually from the Pennsylvania Association for the Blind to be used as a prize to the member of the senior class who writes the best essay on the prevention of blindness.

Tennessee.—Meharry Medical College dedicated the new Anderson Anatomical Hall on Oct. 19, 1917. The $10,000 used in its erection was the gift of Dr. John W. Anderson of Dallas, Texas.

Texas.—During 1917 an attempt by Governor Ferguson to secure political control of the University of Texas and its medical department aroused a vigorous protest. A special session of the legislature was called; Governor Ferguson was impeached; an appropriation of $1,629,407.17 for the university, including $197,500 for the medical department, which Governor Ferguson had vetoed, was again passed, and three regents of the university named by Governor Ferguson were replaced by those who had the best interests of the university at heart.

Virginia.—The Medical College of Virginia has voted to admit women students. A new three-story hospital building is to be erected as a part of the new group of buildings for the Memorial Hospital. This first building will cost about $40,000 and will be used for contagious diseases. The money was donated by Major James H. Dooley.

Wisconsin.—The University of Wisconsin has received gifts amounting to $100,000, which, with an appropriation of $50,000 from the legislature of 1917, will be used to construct a new infirmary for the medical school.

——Marquette University School of Medicine is conducting a campaign to raise $1,000,000 for endowment. Mr. Andrew Carnegie has agreed to give one third of this sum provided the university raises the balance. During the first evening of the campaign $175,000 was raised. A gift of 1,000 volumes to be added to the medical library, has been received from the late Dr. John L. C. Cronyn of Buffalo.

Canada.—McGill University Medical Faculty, Montreal, has just opened its doors to women.

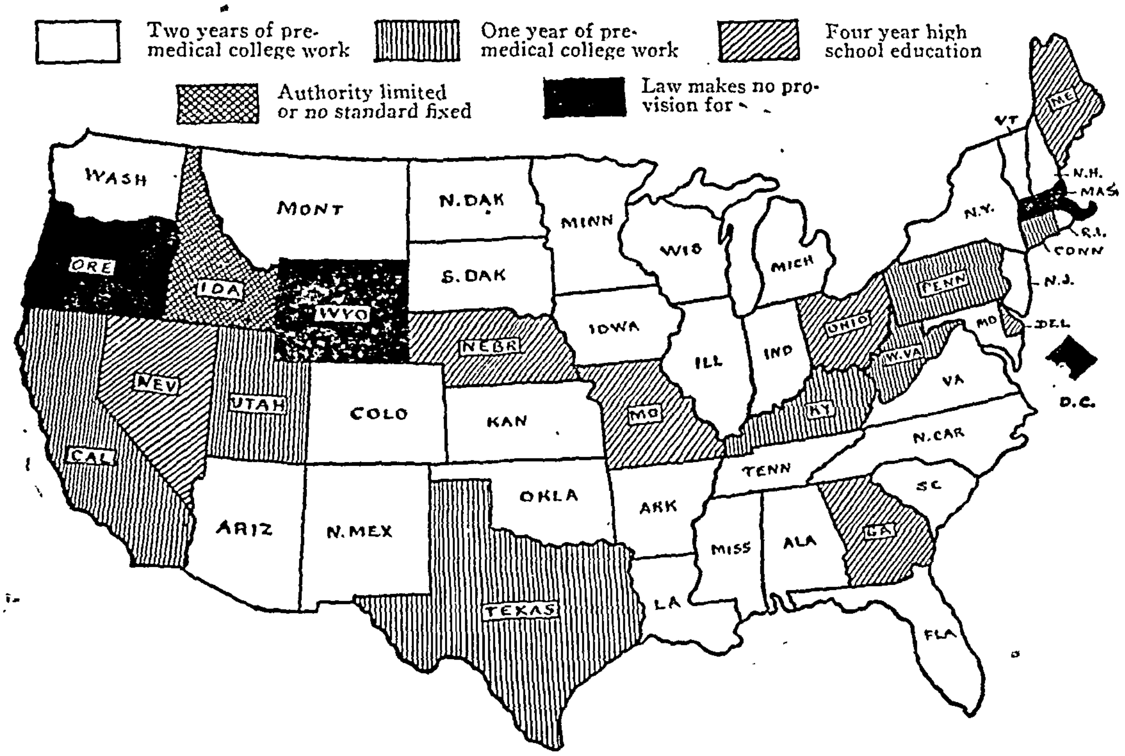
——The University of Toronto has recently received gifts of approximately $2,000,000 to endow chairs in pediatrics, gynecology, orthopedics, and a special branch in medicine.

England.—The London units of the Scottish Women's Hospitals have decided to establish a chair in medicine in the University of Belgrade, Serbia, when it is reestablished after the war, in honor of Dr. Elsie Englis, who was closely identified with hospital work.

Scholarships in Medical Schools

Harvard University received $5,000 by the will of Mrs. Elizabeth Franham, for the creation of two scholarships in the medical school. A donation of $25,000, also, was received from an anonymous donor to establish a scholarship to bear the name of Dr. Edward H. Bradford, recently resigned dean of the medical school.

STATE REQUIREMENTS OF PRELIMINARY EDUCATION



Cornell University received $5,000 by the will of the late Dr. William M. Polk, to continue the John Metcalf Polk scholarship in the medical school.

A scholarship in medicine for a college woman has been endowed by Mrs. E. T. Stotesbury and placed in charge of Dr. Elizabeth Thelberg of Vassar College, New York.

McGill University has been offered $10,000 by Mrs. Frank Oliver, Edmonton, Alta., to establish an annual scholarship of the value of $500, in memory of her son, the late Lieut. Allen Oliver, M. C., killed at the Somme.

Funds for Research

The University of California has obtained the rights of the product "Tethelin," isolated from the anterior lobe of the pituitary body and believed to control growth of cells, and to be capable of accelerating repair in slowly healing wounds. These rights have been given by Dr. T. Brailsford Robertson, professor of biochemistry and pharmacology in the medical school. All profits resulting from the discovery are to be used to endow medical research.

Harvard Medical School is prepared to offer courses of instruction in industrial hygiene and facilities to investigate the problems of industry. In these courses it has the assurance of the cooperation of an advisory board of prominent business men of Boston. A committee on industrial hygiene has been organized consisting of Dr. David L. Edsall, professor of clinical medicine; Dr. Reid Hunt, professor of pharmacology; Dr. Milton J. Rosenau, professor of preventive medicine and hygiene, and Dr. Cecil K. Drinker, assistant professor of physiology. Fellowships and scholarships are available for applicants who are properly qualified. Opportunities will be open to three separate groups, as follows: (*a*) research worker; (*b*) medical officers for large industries, and (*c*) inspectors of industries. Alterations in the plans will be made, if necessary, to meet war conditions.

Harvard University has received a donation of $10,000 under the will of Rebecca A. Green. Of this sum $500 will be used to found a John White Browne Scholarship for research in medicine. A fund of $100,000 was received by the will of Mrs. Charles H. Colburn for research in tuberculosis. A donation of $7,500 was received from M. Douglas Flattery; the income to be used annually to present a gold medal and $500 in cash to the person who may discover means that will result in the greatest good to humanity in connection with the prevention of disease and the conservation of health.

Columbia University recently announced a gift from an anonymous donor of $3,000 for research work in war problems, and another gift of $5,000 from Clarence Mackay for surgical research work.

Graduate Medical Instruction

The Philadelphia Polyclinic has recently merged with the Medico-Chirurgical Post-Graduate School of Pennsylvania.

On Jan. 17, 1918, bonds and cash amounting to $1,693,000, representing the trust fund established by Drs. Charles H. and William J. Mayo, Rochester, Minn., were turned over to the state treasurer to endow graduate medical instruction and research at the University of Minnesota.

A postgraduate medical school for negro physicians has been established in connection with the Provident Hospital of Chicago, which is a hospital for negro patients.

The University of Minnesota Graduate School has established teaching fellowships in pediatrics, medicine, surgery, nervous and mental diseases, ophthalmology and otolaryngology. These fellowships convey stipends of $500 to $1,000. A fellowship has also been established in tuberculosis.

Requirements for the Practice of Medicine in Jamaica.

A letter from the American Consul at Kingston, Jamaica, states that in order to secure the legal right to practice medicine and surgery in the Island of Jamaica, a physician—unless he is on the British Register—should make application in writing to the Governor of Jamaica, requesting him to appoint a board of examiners to pass on his qualifications. He would then have to appear before this board and present a diploma from a faculty of medicine and a license to practice in some state, both of which should be duly authenticated. The physician would then be examined in the various branches of medicine, surgery and midwifery. The examination usually lasts about a week and is both oral and written. The fee must be deposited beforehand with the secretary of the Medical Council of Kingston. This fee amounts to about 12 guineas (English money), or about $65. No specified dates are fixed for examinations, these being held as occasion for them arises.

Medical School at Monterey, Mexico

Correspondence received through the American Consul at Monterey, Mexico, quotes a Dr. Eusebio Guajardo as stating that the School of Medicine of Monterey was founded in September, 1859, and since May, 1878, has had its headquarters at the place known as "Hospital Gonzalez." Dr. Guajardo states that at the present time the School of Medicine has a building of its own and is attended by eighteen professors; that it has provided amphitheaters, laboratories and clinics.

He claims the curriculum is equal to that of the medical schools in Mexico City. He further states that the Mexican government has disbursed $20,000 (Mexican gold) for the School of Medicine at Monterey during the present school year. The present title of the school in Spanish is "Escuela de Medicina de Nuevo León."

Recognition of this school in the United States cannot be recommended until further information in regard to the character of the teachers and laboratories, and the abundance and use made of clinical material has been ascertained. An attempt is being made to secure this information.

The New Peking Union Medical College

The announcement of the new Peking Union Medical College, Peking, China, for the session of 1918-19, has recently been sent out. It contains a perspective view of the new medical school and its group of hospital buildings. These, when completed, will consist of seventeen buildings, connected by covered corridors, and will occupy the space of about four city blocks. All but four of these buildings and two prospective wings of the medical school have already been completed. A premedical school was opened in September, 1917, and the medical school will be open for students in September, 1919. Graduation from an approved middle school of China, or its equivalent, in addition to 108 credit (semester) hours of college work, is required for admission. The premedical work includes courses in English, Chinese language and literature, algebra through quadratics, plane geometry, biology, chemistry, physics, Chinese and universal history and drawing. The teaching year begins September 17 and will end June 20 of the following year. The announcement contains floor plans of the various college and hospital buildings.

This Peking Union Medical College was founded early in 1906 by various American and English boards of missions, following the Boxer outbreak. Substantial contributions toward the building fund were obtained from the Empress Dowager of China. The Chinese language was the medium of instruction.

The college rendered valuable service in 1910-11 in connection with the serious outbreak of pneumonia and the epidemic of the plague. As a result of their work three members of the college staff were decorated with the Order of the Double Dragon. The college staff, also, rendered valuable military surgical work with the Imperial forces during the revolution of 1911.

In the spring of 1914, the China Medical Commission, representing the Rockefeller Foundation, was sent to China "to inquire into the condition of medical education, hospitals and public health in China." This commission recommended Peking as the place where the first medical educational work should be organized. The China Medical Board was then organized which took over the property of the college. The terms of the transfer provided for a board of trustees consisting of thirteen members, one to be appointed by each of the six missionary organizations previously maintaining the college, and seven by the China Medical Board. Full support of the college was assumed by the China Medical Board on July 1, 1915.

This generous support of medical education in China by Mr. Rockefeller will help to strengthen the friendship between America and the newly established republic on the other side of the Pacific Ocean.

The Training of the Student of Medicine

A series of papers on "The Training of the Student of Medicine," the result of an organization conducted under the auspices of the Edinburgh Pathological Club, have appeared in the Edinburgh *Medical Journal*, beginning with the January, 1918, number. Including the July number, altogether twenty-five separate articles have appeared. Extensive discussions which followed the reading of the article before the Royal Medical Society and the Edinburgh Pathological Club are also published. The papers thus published and their authors are as follows:

1. The Aim of Medical Education, Sir James Mackenzie.
2. The Teaching of Chemistry, Prof. James Walker.
3. Botany in Medical Education, Prof. Bayley Balfour.
4. The Connection of Zoology with Medicine, Prof. J. Cossar Ewart.
5. The Teaching of Anatomy, Prof. G. Elliot Smith.
6. The Teaching of Anatomy, Prof. David Waterston.
7. The Place of Anatomy in the Curriculum, Professor Robinson.
8. The Relation of Physiology to Medicine, Dr. J. S. Haldane.
9. The Position of Systematic Lectures in the Curriculum, Sir Edward A. Schäfer.
10. The Relation of the Preliminary Sciences to the Curriculum. Sir Edward A. Schäfer.
11. Pathology and the Medical Students, Prof. Henry R. Dean.
12. On the Teaching of Pathological Anatomy with Special Reference to Clinical Medicine, Dr. Ivy MacKenzie.
13. Pathology in General Practice, James S. Edwards.
14. The Teaching of Pathology, Prof. Lorrain Smith.
15. The Place of Bacteriology in the Ordinary Medical Curriculum, Professor Ritchie.
16. Memorandum on the Teaching of Materia Medica and Therapeutics, Prof. Sir T. R. Fraser.
17. The Teaching of Materia Medica and Therapeutics, Prof. C. R. Marshall.
18. Teaching: With Special Reference to Materia Medica.
19. The Teaching of Materia Medica, Prof. Ralph Stockman.
20. Memorandum of the Teaching of "Public Health" in the Curriculum of Medical Students, John Robertson.
21. The Teaching of Public Health, Prof. Matthew Hay.
22. The Place of Public Health in the Medical Curriculum Prof. Hunter Stewart.
23. The Teaching of Medicine, Prof. William Russell.
24. The Teaching of Medicine, Prof. G. Lovell Gulland.
25. The Teaching of Medicine, Dr. Edwin Matthew.

STATE REQUIREMENTS OF PRELIMINARY EDUCATION

There are now thirty-seven states which have adopted requirements of preliminary education in addition to a standard four-year high school education. These states, the number of college years required and the time the higher requirements became or become effective are as follows:

TABLE 3.—STATE REQUIREMENTS OF PRELIMINARY EDUCATION

State Examining Board of	One Year of College Work		Two Years of College Work	
	Affects Students Matriculating	Affects All Graduates	Affects Students Matriculating	Affects All Graduates
Alabama	......	....	1915-16	1919
Alaska	1914-15	1918	1918-19	1922
Arizona	1914-15	1918	1918-19	1922
Arkansas	1915-16	1919	1918-19	1922
California	1915-16	1919	......	....
Colorado	1908-09	1912	1910-11	1914
Connecticut	1911-12	1915	......	....
Delaware*	......	....	......	....
Dist. of Columbia†	......	....	......	....
Florida	1914-15	1918	1918-19	1922
Georgia*	......	....	......	....
Idaho*	......	....	......	....
Illinois	1915-16	1919	1918-19	1922
Indiana	1910-11	1914	1911-12	1915
Iowa	......	....	1911-12	1915
Kansas	1910-11	1914	......	....
Kentucky	1914-15	1918	......	....
Louisiana	1915-16	1919	1918-19	1922
Maine*	......	....	......	....
Maryland	1914-15	1918	1918-19	1922
Massachusetts†	......	....	......	....
Michigan	1914-15	1918	1918-19	1922
Minnesota	......	....	1908-09	1912
Mississippi	1915-16	1919	1919-20	1923
Missouri*	......	....	......	....
Montana	1914-15	1918	1918-19	1922
Nebraska*	......	....	......	....
Nevada*	......	....	......	....
New Hampshire	1914-15	1918	1915-16	1919
New Jersey	1915-16	1919	1916-17	1920
New Mexico	1914-15	1918	1918-19	1922
New York	1917-18	1921	1918-19	1922
North Carolina	1914-15	1918	1918-19	1922
North Dakota	......	....	1908-09	1912
Ohio*	......	....	......	....
Oklahoma	1914-15	1918	1917-18	1921
Oregon†	......	....	......	....
Pennsylvania	1914-15	1918	......	....
Rhode Island	1914-15	1918	1918-19	1922
South Carolina	......	....	1916-17	1920
South Dakota	1908-09	1912	1911-12	1915
Tennessee	1916-17	1920	1918-19	1922
Texas	1914-15	1918	......	....
Utah	1913-14	1917	......	....
Vermont	1913-14	1917	1918-19	1922
Virginia	1914-15	1918	1917-18	1921
Washington	1914-15	1918	1918-19	1922
West Virginia	1917-18	1921	......	....
Wisconsin	......	....	1915-16	1919
Wyoming†	......	....	......	....

* Require a four-year high school education or its equivalent.
† No fixed standard.

STANDARDS OF THE COUNCIL ON MEDICAL EDUCATION OF THE AMERICAN MEDICAL ASSOCIATION

SCHEDULE FOR THE GRADING OF MEDICAL SCHOOLS

Schools will be rated on a civil service basis on a scale of 1,000 points. The data relating to each school will be grouped under ten general heads in such a manner that the groups will have as nearly equal weight as possible, each group allowing a possible 100 points (10 per cent.) out of a posible 1,000 points (100 per cent.). The revised schedule showing the general heads under which the data will hereafter be arranged is as follows:

1. Character of curriculum, grading of course, sequence of subjects, supervision, administration, etc.
2. Medical school buildings; adaptability, light, heat, ventilation, cleanliness, etc.
3. Laboratory facilities and instruction.
4. Dispensary facilities and instruction.
5. Hospital facilities and instruction in medicine, surgery, obstetrics, and gynecology.
6. Hospital facilities for instruction in medical specialties and provision for clinical clerkships, necropsies, etc.
7. Full-time instructors and assistants with special reference to their special qualifications and evidences of their work, including research.
8. Faculty, number, qualifications and organization of, including the staff of teaching hospitals.
9. Library, museum, charts and special apparatus and evidences of the use made of them.
10. Showing of graduates at state board and other examinations and other evidences by which the training received is indicated.

It will be noted that financial income is not referred to in the ten heads outlined. It is quite evident, however, that no college can secure an adequate number of expert full-time teachers, provide well equipped laboratories, library and museum, and be conducted in accordance with present-day medical knowledge without a liberal income in addition to students' fees.

Meaning of Classes A, B, and C

Class A Colleges will, as heretofore, be those which are acceptable; Class B, those which, under their present organization, give promise of being made acceptable by general improvements, and Class C those

(*a*) Which require a complete reorganization to make them acceptable.

(*b*) Which do not keep *satisfactory* records of their students in regard to entrance requirements, attendance, grades in courses, division into classes and reasons for promotion.

(*c*) Which do not enforce their requirements in regard to admission (including those admitted to advanced standing), promotion and graduation.

(*d*) Which give the major portion of their instruction after 4 o'clock in the afternoon.

(*e*) Which are privately owned and conducted for profit.

(*f*) Which for other specific reasons are not eligible for inclusion in Class B.

ESSENTIALS OF AN ACCEPTABLE MEDICAL COLLEGE

(Revised to June 15, 1918)

The following outline of the essentials of an acceptable
medical college was issued by the Co ncil on Medical Educa-
tion of the American Medical for its e
value in the rapid develop ss in
colleges of the United States. ents
by which medical colleges n t
classifications.

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I. High School Requirements

(*a*) For admission to the two-year premedical college course, students shall have completed a four-year course of at least fourteen units (fifteen after Jan. 1, 1920) in a standard accredited high school or other institution of standard secondary school grade, or have the equivalent as demonstrated by examinations conducted by the College Entrance Examination Board, or by the authorized examiner of a standard college or university which has been approved by the Council on Medical Education. Unless all the entrance units are obtained by examination, a detailed statement of attendance at the secondary school, and a transcript of the student's work, should be kept on file by the college authorities. This evidence of actual attendance at the secondary schools should be obtained, no matter whether the student is admitted to the freshman or to higher classes.

(*b*) Credits for admission to the premedical college course may be granted for the subjects shown in the following list and for any other subject counted by a standard accredited high school as a part of the requirements for its diploma, provided that at least eleven units must be offered in Groups I-V:

SCHEDULE OF SUBJECTS REQUIRED OR ACCEPTED FOR ENTRANCE TO THE PREMEDICAL COLLEGE COURSE

Subjects	Units*	Required
Group I, English—		
Literature and composition	3-4	3
Group II, Foreign Languages—		
Latin	1-4	2†
Greek	1-3	
French or German	1-4	
Other foreign languages	1-4	
Group III, Mathematics—		
Elementary algebra	1	1
Advanced algebra	½-1	..
Plane geometry	1	1
Solid geometry	½	..
Trigonometry	½	..
Group IV, History—		
Ancient history	½-1	1
Medieval and modern history	½-1	
English history	½-1	
American history	½-1	
Civil government	½-1	
Group V, Science—		
Botany	½-1	..
Zoology	½-1	..
Chemistry	1	..
Physics	1	..
Physiography	½-1	..
Physiology	½-1	..
Astronomy	½	..
Geology	½-1	..
Group VI, Miscellaneous—		
Agriculture	1-2	..
Bookkeeping	½-1	..
Business law	½	..
Commercial geography	½-1	..
Domestic science	1-2	..
Drawing, freehand and mechanical	½-2	..
Economics and economic history	½-1	..
Manual training	1-2	..
Music: Appreciation or harmony	1-2	..

* A unit is the credit value of at least thirty-six weeks' work of four or five recitation periods per week, each recitation period to be not less than forty minutes. In other words, a unit represents a year's study in any subject in a secondary school, constituting approximately a quarter of a full year's work. A satisfactory year's work in any subject cannot be accomplished under *ordinary* circumstances in less than 120 sixty-minute hours, or their equivalent.

† Both of the required units of foreign language must be of the same language, but the two units may be presented in any one of the languages specified.

Of the fourteen units of high school work (fifteen after Jan. 1, *1920*), eight units are *required*, as indicated in the foregoing schedule; the balance may be made up from any of the *other* subjects in the schedule.

II. Premedical College Course

(*c*) Beginning Jan. 1, 1918, the minimum requirement for admission to acceptable medical schools, *in addition to the*
igh school work specified above, will be sixty semester hours
collegiate work, extending through two years, of thirty-
weeks each, *exclusive of holidays, in a college approved*
uncil on Medical Education. The subjects included
ears of college work should be in accordance with
chedule:

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of approved colleges may be received on application.

SCHEDULE OF SUBJECTS OF THE TWO-YEAR PREMEDICAL COLLEGE COURSE

Sixty Semester Hours* Required

	Semester Hours
Required Subjects:	
Chemistry (a)	12
Physics (b)	8
Biology (c)	8
English composition and literature (d)	6
Other nonscience subjects (e)	12
Subjects Strongly Urged:	
French or German (f)	6-12
Advanced botany or advanced zoology	3-6
Psychology	3-6
Advanced mathematics, including algebra and trigonometry	3-6
Additional courses in chemistry	3-6
Other Suggested Electives:	
English (additional), economics, history, sociology, political science, logic, mathematics, Latin, Greek, drawing.	

* A semester hour is the credit value of sixteen weeks' work consisting of one lecture or recitation period per week, each period to be not less than fifty minutes net, at least two hours of laboratory work to be considered as the equivalent of one lecture or recitation period.

SUGGESTIONS REGARDING INDIVIDUAL SUBJECTS

(*a*) *Chemistry.*—Twelve semester hours required (eight until Jan. 1, 1919), of which at least eight semester hours must be in general inorganic chemistry, including four semester hours of laboratory work. In the interpretation of this rule work in qualitative analysis may be counted as general inorganic chemistry. The remaining four semester hours (required after Jan. 1, 1919) may consist of additional work in general chemistry or of work in analytic or organic chemistry.

(*b*) *Physics.*—Eight semester hours required, of which at least two must be laboratory work. It is urged that this course be preceded by a course in trigonometry. This requirement may be satisfied by six semester hours of college physics, of which two must be laboratory work, if preceded by a year (one unit) of high school physics.

(*c*) *Biology.*—Eight semester hours required, of which four must consist of laboratory work. The requirement may be satisfied by a course of eight semester hours in either general biology or zoology, or by courses of four semester hours each in zoology and botany, but not by botany alone.

(*d*) *English Composition and Literature.*—The usual introductory college course of six semester hours, or its equivalent, is required.

(*e*) *Nonscience Subjects.*—Of the sixty semester hours required as the measurement of two years of college work, at least eighteen, including the six semester hours of English, should be in subjects other than the physical, chemical or biologic sciences.

(*f*) *French or German.*—A reading knowledge of one of these languages is strongly urged. If the reading knowledge in one of these languages is obtained on the basis of high school work, the student is urged to take the other language in his college course. It is not considered advisable, however, to spend more than twelve of the required sixty semester hours on foreign languages. In case a reading knowledge of one language is obtained by six semester hours of college work, another six semester hours may be well spent in taking the beginner's course in the other language; if this is followed up by a systematic reading of scientific prose, a reading knowledge of the second language may be readily acquired. When a student spends more than two years in college he may well spend twelve semester hours of his college work in the second language.

III. Approved Colleges of Arts and Sciences

A tentative list of colleges of arts and sciences approved by the Council on Medical Education has been prepared, and revisions of this list will be published from time to time. By an approved college (of arts and sciences) is meant one whose standing has been vouched for by some standardizing agency in whose methods the Council has confidence. To be recognized a college must have sufficient scientific equipment and maintain laboratories in the premedical sciences. It must have ample endowment to maintain a sufficient corps of teachers. Membership in some national organization or association of colleges will be favorably regarded by the Council and, in the absence of such membership, careful investigation will be made of the causes of exclusion. It must also maintain national standards for admission to its freshman class. Students must be required to complete a four-year high school course, and the requirements for admission to the premedical course must be no less than the requirements for admission to the regular B. S. course of the college.

Particular attention will be given to the character of high schools from which certificates are received. Colleges should recognize only certificates from high schools approved by commissions or boards of associations of colleges and secondary schools or other agencies approved by the Council. When such endorsement is lacking the college should be slow in accepting certificates without the support of entrance examinations. Undue liberality in the acceptance of certificates from secondary schools unendorsed by approved standardizing agencies will be registered by the Council as a failure to comply with its requirements and the college will be dropped from the approved list.

PREMEDICAL COURSES IN MEDICAL COLLEGES—JUNIOR COLLEGES

Premedical college courses given in or by medical schools, or advance years taken in high schools, will not be considered as acceptable unless they have been investigated and approved by some association of colleges and secondary schools or other approved agency having to do with the standardizing of liberal arts colleges.

ADMINISTRATION OF ENTRANCE REQUIREMENTS

2. The admission of students to the medical school must be in the hands of a responsible committee or examiner whose records shall always be open for inspection.[5] Documentary evidence of the students' preliminary education should be obtained and kept on file. When the medical school is an integral part of a university, this work usually devolves on the university examiner. Unless the university examiner and his records are closely accessible, however, some officer at the medical school should obtain and keep on file documentary evidence of each student's preliminary education, including both high school and collegiate work. It is particularly important that the records show that the required amount of work in the premedical sciences, including laboratory exercises, has been completed.

OTHER MEDICAL SCHOOL REQUIREMENTS

3. The college should require that students be in actual attendance in the college *within the first week* of each annual session and thereafter.

4. Actual attendance at classes should be insisted on except for good cause, such as for sickness, and no credit should be given for any course where the attendance has been less than 80 per cent. of the full time.

5. (*a*) Full advanced standing may be granted to students only for work done in other acceptable medical schools, and in granting advanced standing there should be no discrimination against the college's full-course students. Official verification of the student's previous medical work should be obtained by direct correspondence with the college previously attended, and his preliminary qualifications should also be verified and recorded the same as for freshman students. (*b*) In *exceptional cases* students from Class B medical schools may be given advanced standing but not higher than *entrance* to the third year (junior) class, and no credit should be given in any subject except on recommendation of the head of the department teaching that subject. (*c*) In *exceptional cases* students from Class C colleges may be given advanced standing but not higher than *entrance* to the second year (sophomore) class, and then only after thorough examinations in all first year subjects have been passed.

SUPERVISION, EQUIPMENT, TEACHERS

6. There should be careful and intelligent supervision of the entire school by the dean or other executive officer who holds, and has sufficient authority to carry out, fair ideals of medical education as determined by the present day knowledge of medicine.

7. There should be a good system of records[6] showing conveniently and in detail the credentials, attendance, grades and accounts of the students, by means of which an exact knowledge can be obtained regarding each student's work.

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[5] See "Meaning of Classes A, B and C," paragraph (*c*), on page 548.

[6] See "Meaning of Classes A, B and C," paragraph (*b*), on page 548.

Records should also be kept showing readily the attendance of patients at the teaching hospitals and dispensaries; the maternity cases attended by students, and the postmortem cases used in teaching.

8. The college curriculum should be fully graded and should cover four sessions of at least thirty-two weeks each, exclusive of time required for matriculation and holidays, and at least thirty hours per week of actual work. The courses offered in the various subjects should be set forth by departments (anatomy, physiology, etc.) in the annual announcement, showing for each course its number, subject content, character (lecture, recitation, laboratory or clinic), length of time, when, where, and by whom given, and the amount of credit allowed. The courses for each class should also be clearly set forth in a printed class schedule, for the guidance of the students.

(*a*) The college should give two years of work consisting largely of laboratory work in well equipped laboratories of anatomy, histology, embryology, physiology, chemistry (inorganic, organic and physiologic), bacteriology, pathology, pharmacology, therapeutics and clinical diagnosis. Present-day medical knowledge makes it essential that these subjects be in charge of full-time, well-trained teachers.

(*b*) Two years of clinical work, largely in hospitals and dispensaries, with courses in medicine (including physical diagnosis, pediatrics, nervous and mental diseases), surgery (including surgical anatomy and operative surgery on the cadaver), obstetrics, gynecology, laryngology, rhinology, ophthalmology, otology, dermatology, hygiene and medical jurisprudence. With the higher entrance requirements time is now available in the latter part of the second year for beginning courses in physical diagnosis and the principles of surgery.

(*c*) As soon as conditions warrant, relations should be established with a number of approved hospitals so that a fifth undergraduate year may be required to be spent by the student as an intern under the continued supervision of the medical school.

FACULTY

9. (*a*) The college should provide at least *eight expert thoroughly trained professors in the laboratory branches,* salaried so that they may devote their entire time to instruction and to that research without which they cannot well keep up with the rapid progress being made in their subjects.[7] There should also be a sufficient number of assistants in each department to look after the less important details. For colleges having *sixty students or less* in each class, there should be *at least one full-time salaried assistant each in the departments* of (1) anatomy, (2) physiology, (3) pathology and bacteriology, and (4) physiologic chemistry and pharmacology, and *one additional assistant in each of these departments should be provided for each additional thirty students enrolled.* This represents a low average of the full-time assistants already employed by the acceptable medical colleges.

(*b*) The faculty should be made up of graduates of institutions recognized as medical colleges and who have had a training in all departments of medicine. Nonmedical men should be selected as teachers in medical schools only under exceptional circumstances and only when medical men of equal special capacity are not available. The faculty should be organized, each department having its head professor, its associate professor, assistant professor, instructor, etc., each having his particular subjects for the teaching of which he is responsible to the head of the department.

CLINICAL FACILITIES

10. (*a*) The college should own or entirely control a hospital, in order that students may come into close and extended contact with patients under the supervision of the attending staff. This hospital should be in close proximity to the college and have a daily average (for senior classes of 100 students *or less*) of not less than 200 patients who can be utilized for clinical teaching, these patients to be of such character as to permit the students to see and study the common variety of surgical and medical cases as well as a fair number in each of the so-called specialties. In the use of this material *bedside and ward clinics* should be developed for sections of from five to ten students, and for the seniors, a certain number of patients in medicine, surgery and the specialties should be assigned to each student. A well supervised clinical clerk system should also be installed. The treatment and care of these patients should be particularly observed and recorded by the student under the strict supervision of the intern, or the attending staff of the hospital.[8]

(*b*) The college should also have ample hospital facilities for children's diseases, contagious diseases and nervous and mental diseases.

(*c*) The college should own or control a dispensary, or outpatient department, the attendance to be a daily average of 100 patients (visits) (for senior classes of 100 students *or less*), the patients to be carefully classified, good histories and records of the patients to be kept and the material to be well used. The attending staff should be made up of good teachers, should be well organized and be regular in attendance.

(*d*) At least six maternity cases should be provided for each senior student, who should have actual charge of these cases under the supervision of the attending physician. Careful records of each case should be handed in by the student.

(*e*) Facilities should be provided for at least thirty necropsies (for senior classes of 100 students *or less*) during each college session which are attended and participated in by senior students.

OTHER TEACHING FACILITIES AND FINANCES

11. The college should have a working medical library, to include the more modern text and reference books with the *Index Medicus* and thirty or more leading medical periodicals, the current numbers of which should be in racks or on tables easily accessible to the students; the library room should be properly lighted and heated, and open during all or the greater part of the day; it should be equipped with suitable indexes as well as with tables and chairs, and have a competent librarian in charge.

12. There should be a working medical museum having its various anatomic, embryologic, pathologic and other specimens carefully prepared, labeled and indexed so that any specimen may be easily found and employed for teaching purposes. It is suggested that so far as possible with each pathologic specimen coming from postmortems there also be kept the record of the postmortem, the clinical history of the patient on whom the necropsy was held and microscopic slides showing the minute structures of the disease shown in the gross specimen. The museum furnishes an excellent means of correlating the work of the department of pathology with that of the clinical departments.

13. There should be sufficient dissecting material to enable each student individually to dissect at least the lateral half of the human cadaver, to provide cross-sections and other demonstration material and to allow of a thorough course for each senior in operative surgery on the cadaver.

14. For modern experimental laboratory work in physiology, pharmacology and bacteriology as well as for medical research, a supply of animals—frogs, turtles, rabbits and guinea-pigs, if not also cats and dogs—is essential. Proper provision, also, is necessary for the housing and care of such animals. In any use made of animals every precaution should be taken to prevent needless suffering, and work by students should be carefully supervised.

15. Each college should have a supply of such useful auxiliary apparatus as a stereopticon, a reflectoscope, carefully prepared charts, embryologic or other models, manikins, dummies for use in bandaging, a roentgen-ray and other apparatus now so generally used in medical teaching.

16. The college should show evidences of thorough organization and of reasonably modern methods in all departments, and evidences that the equipment and facilities are *being intelligently used* in the training of medical students.

17. A clear statement of the college's requirements for admission, tuition, time of attendance on the classes, sessions, courses offered and graduation should be clearly set forth, together with complete classified lists of its matriculants and latest graduating class in regular annual catalogues or announcements.

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[7] These professors should have a definite responsibility in the conduct of the college, and their first and chief interest should be the training of medical students. It is suggested that four of these professors be placed at the head of the departments of (*a*) anatomy, (*b*) physiology, (*c*)pathology and bacteriology and (*d*) physiologic chemistry and pharmacology. The other four may be assigned, one each, to (*e*) histology and embryology, under the department of anatomy, and to the departments of pathology and bacteriology, physiology and pharmacology, and to the departments of internal medicine and surgery.

[8] Suggestions more in detail may be found in the "Report of the Committee on the Reorganization of Clinical Teaching."—The Journal A. M. A., March 6, 1915. Reprint sent on application.

18. Statistics show[9] that modern medicine cannot be acceptably taught by a medical school depending solely on the income from students' fees. No medical school should expect to secure admission to, or be retained in Class A, therefore, which does not have an annual income of at least $25,000 in addition to the amount obtained from students' fees.

NOTE.—Correspondence from medical colleges regarding the above requirements is invited, and further suggestions or information available will be gladly furnished.

Entrance Requirements of Medical Colleges

Eighty-one medical schools are now requiring, as a minimum for entrance, *two years* or more of work in a college of liberal arts in addition to a four-year high-school education. The years, respectively, when for each college the one-year and the two-year requirements became effective, and the rating of each college, are as follows:

College	One Year	Two Years	College Rating
ALABAMA			
University of Alabama School of Medicine	1914	1915	A
ARKANSAS			
University of Arkansas Medical Department	1915	1918	B
CALIFORNIA			
College of Medical Evangelists	1914	1915	B
University of Southern California Med. Dept.	1914	1916	B
Leland Stanford Junior University School of Med.	....	1909	A
University of California Medical School	....	1905	A
COLORADO			
University of Colorado School of Medicine	....	1910	A
CONNECTICUT			
Yale University School of Medicine	....	1909	A
DISTRICT OF COLUMBIA			
Georgetown University School of Medicine	....	1912	A
George Washington University Medical School	1914	1918	A
Howard University School of Medicine	1910	1914	A
GEORGIA			
Emory University School of Medicine, Atlanta	1914	1918	A
University of Georgia Medical Department	1914	1918	A
ILLINOIS			
Chicago College of Medicine and Surgery School of Medicine of Loyola University	1915	1918	B
Hahnemann Medical College and Hospital	1914	1916	B
Northwestern University Medical School	1908	1911	A
Rush Medical College (University of Chicago)	....	1904	A
University of Illinois College of Medicine	1913	1914	A
INDIANA			
Indiana University School of Medicine	1909	1910	A
IOWA			
State University of Iowa College of Medicine	1909	1910	A
State University of Iowa College of Homeo. Med.	....	1910	A
KANSAS			
University of Kansas School of Medicine	....	1909	A
KENTUCKY			
University of Louisville Medical Department	1914	1918	A
LOUISIANA			
Tulane University of Louisiana School of Medicine.	1910	1918	A
MAINE			
Bowdoin Medical School	1912	1916	A
MARYLAND			
Johns Hopkins University Medical Department	....	1893	A
University of Maryland School of Med. and Coll. of Physicians and Surgeons	1914	1918	A
MASSACHUSETTS			
Boston University School of Medicine	1914	1916	A
Medical School of Harvard University	....	1900	A
Tufts College Medical School	1914	1918	A
MICHIGAN			
Detroit College of Medicine and Surgery	1914	1918	A
University of Michigan Medical School	....	1909	A
University of Michigan Homeopathic Medical School	1912	1916	A
MINNESOTA			
University of Minnesota Medical School	....	1907	A
MISSISSIPPI			
University of Mississippi School of Medicine	1914	1918	A
MISSOURI			
St. Louis University School of Medicine	1910	1918	A
University of Missouri School of Medicine	1906	1910	A
Washington University Medical School	1910	1912	A
NEBRASKA			
John A. Creighton Medical College	1914	1918	A
University of Nebraska College of Medicine	1908	1909	A
NEW HAMPSHIRE			
Dartmouth Medical School	....	1910	A
NEW YORK			
Albany Medical College	1914	1918	A
Columbia University College of Phys. and Surg.	....	1910	A
Cornell University Medical College	....	1908	A
Fordham University School of Medicine	1911	1918	A
Long Island College Hospital	1914	1918	A
New York Homeo. Med. Coll. and Flower Hospital	1915	1919	B
Syracuse University College of Medicine	1909	1910	A
University and Bellevue Hospital Medical College	1912	1918	A
University of Buffalo Department of Medicine	1914	1918	A
NORTH CAROLINA			
Leonard Medical School	....	1914	B
Wake Forest College School of Medicine	....	1908	A
University of North Carolina School of Medicine	1910	1917	A
NORTH DAKOTA			
University of North Dakota School of Medicine	....	1907	A
OHIO			
Eclectic Medical College	1915	1918	B
Ohio State University College of Medicine	1914	1915	A
Ohio State Univ. Coll. o[illegible]	1915	1916	B
University of Cincinnati [illegible]	1910	1913	A
Western Reserve Univers[illegible]	....	1901	A
OKLAHOMA			
University of Oklahoma School of Medicine	1914	1917	B
OREGON			
University of Oregon Department of Medicine	1910	1915	A
PENNSYLVANIA			
Hahnemann Medical College and Hospital	1914	1917	A
Jefferson Medical College	1914	1917	A
Temple University Department of Medicine	1914	1918	B
University of Pennsylvania School of Medicine	1909	1910	A
University of Pittsburgh School of Medicine	1911	1913	A
Woman's Medical College of Pennsylvania	1914	1915	A
SOUTH CAROLINA			
Medical College of the State of South Carolina	1914	1916	A
SOUTH DAKOTA			
University of South Dakota College of Medicine	1908	1909	A
TENNESSEE			
Meharry Medical College	1914	1918	B
Vanderbilt University Medical Department	1914	1918	A
University of Tennessee College of Medicine	1914	1918	A
TEXAS			
Baylor University College of Medicine	1913	1918	A
University of Texas Department of Medicine	1910	1917	A
UTAH			
University of Utah School of Medicine	1909	1910	A
VERMONT			
University of Vermont College of Medicine	1912	1918	A
VIRGINIA			
Medical College of Virginia	1914	1915	A
University of Virginia Department of Medicine	1910	1917	A
WEST VIRGINIA			
West Virginia University School of Medicine	1911	1917	A
WISCONSIN			
Marquette University School of Medicine	1913	1915	A
University of Wisconsin Medical School	....	1907	A

Total, 81.

The eleven following medical colleges[10] either have not announced the higher entrance requirements or evidence has not been received to show they are in effect for all students enrolled:

	Rating
College of Physicians and Surgeons, San Francisco	C
Chicago Hospital College of Medicine	C
College of Physicians and Surgeons, Boston	C
Middlesex College of Medicine and Surgery, Cambridge, Mass.	C
Eclectic Medical University, Kansas City	C
Kansas City College of Medicine and Surgery	[11]
Kansas City University of Physicians and Surgeons	[12]C
St. Louis College of Physicians and Surgeons	C
Lincoln Medical College, Lincoln, Neb.	C
University of West Tenn. Coll. of Med. and Surg., Memphis	C

Scholarships in Medical Schools

As evidenced that provision is being made for worthy students, regardless of their financial status, 335 scholarships are reported this year in the following thirty-eight medical schools:

University of Alabama School of Medicine, Mobile	67
Leland Stanford Junior University Medical School*	3
University of California Medical School,* San Francisco	3
University of Colorado School of Medicine,* Boulder	1
Yale University School of Medicine, New Haven, Conn.*	2
Hahnemann Medical College and Hospital of Chicago*	6
Loyola University School of Medicine, Chicago	3

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[9] See "Medical College Finances," THE JOURNAL A. M. A., April 8, 1916, p. 1115.

[10] For the standing of these and other medical colleges before state licensing boards, see Table D, THE JOURNAL A. M. A., *April 13, 1918, p. 1084.*

[11] This college is an offshoot of the Eclectic Medical University; it has refused to have an inspection made. It is reported not recognized by the Missouri State Board of Health.

[12] This college was formerly the Central College of Osteopathy; in 1916 it assumed the title Central College Medical Department, and took its present name in 1918.

Rush Medical College, Chicago	7
University of Illinois College of Medicine, Chicago*	7
Indiana University School of Medicine, Indianapolis	12
State University of Iowa College of Medicine	1
University of Kansas School of Medicine*	17
Johns Hopkins University Medical Department, Baltimore	6
University of Maryland School of Medicine,* Baltimore	6
Harvard Medical School,* Boston	30
Boston University School of Medicine*	50
etroit College of Medicine and Surgery	8
Vashington University Medical School, St. Louis	4
Dartmouth Medical School,* Hanover, N. H.	2
Fordham University School of Medicine	1
University of Buffalo Department of Medicine*	1
University of Cincinnati College of Medicine*	12
Western Reserve University School of Medicine, Cleveland	1
University of Oregon Department of Medicine,* Portland	3
Hahnemann Medical College and Hospital of Philadelphia*	12
Jefferson Medical College of Philadelphia	1
Temple University Department of Medicine, Philadelphia	3
University of Pennsylvania School of Medicine,* Philadelphia	3
Woman's Medical College of Pennsylvania,* Philadelphia	15
Medical College of the State of South Carolina, Charleston	8
University of Tennessee College of Medicine, Memphis	6
Vanderbilt University Medical Department, Nashville, Tenn.	4
Baylor University College of Medicine, Dallas, Tex.	5
University of Texas Department of Medicine,* Galveston	1
University of Wisconsin Medical School*	6
University of Vermont College of Medicine*	1
Medical College of Virginia, Richmond	15
University of Virginia Department of Medicine, Charlottesville*	2
Total in 38 medical schools	335

* Have loan funds also.

Loan Funds

Besides the twenty-one colleges marked by an asterisk (*) in the above list which have loan funds for deserving but needy students, such funds are available also at the five following medical schools:

College of Medical Evangelists, Loma Linda, Calif.
Tulane University of Louisiana School of Medicine, New Orleans, La.
University of Missouri School of Medicine, Columbia, Mo.
University of Nebraska College of Medicine, Omaha, Neb.
Wake Forest College School of Medicine, Wake Forest, N. C.
University of North Dakota, School of Medicine, University, N. D.

Hospital Intern Year

Eight medical colleges have adopted the requirement of a fifth year to be spent by the student as an intern in an approved hospital or in other acceptable clinical work before the M.D. degree will be granted. These colleges and the sessions when the requirement became effective are as follows:

	Session of
University of Minnesota Medical School	1910-11
Leland Stanford Jr. University School of Medicine	1914-15
Rush Medical College (University of Chicago)	1914-15
University of California Medical School	1914-15
Northwestern University Medical School	1915-16
University of Vermont College of Medicine	1915-16
College of Physicians and Surgeons, Medical Department of the University of Southern California	1918-19
Columbia Univ. Coll. of Physicians and Surgeons, New York	1918-19

Eight state licensing boards now require that every candidate to be eligible for license to practice medicine in those states must have served at least one year as an intern in an approved hospital. The requirement became effective in Pennsylvania in 1914, in New Jersey in 1916, in Alaska in 1917 (unless applicant has been in general practice for four years), in North Dakota and Rhode Island in 1918, and will become effective in Illinois in 1921, in Michigan in 1922, and in Iowa in 1923.

CLASSIFICATION OF MEDICAL COLLEGES

Revised to *June 10, 1918*

CLASS A—ACCEPTABLE MEDICAL COLLEGES

Alabama

University of Alabama School of Medicine..........Mobile

California

Leland Stanford Junior Univ. School of Med..San Francisco
University of California Medical School......San Francisco

Colorado

University of Colorado School of Med.....Boulder-Denver

Connecticut

Yale University School of Medicine..........New Haven

District of Columbia

Georgetown University School of Medicine.....Washington
George Washington University Medical School..Washington
Howard University School of Medicine[1]..........Washington

Georgia

Emory University School of Medicine[2]..............Atlanta
University of Georgia Medical Department[3]........Augusta

Illinois

Northwestern University Medical School..........Chicago
Rush Medical College (University of Chicago).....Chicago
University of Illinois College of Medicine..........Chicago

Indiana

Indiana Univ. School of Med.....Bloomington-Indianapolis

Iowa

State University of Iowa College of Medicine....Iowa City
State Univ. of Iowa Coll. of Homeopathic Med....Iowa City

Kansas

University of Kansas School of Med....Lawrence-Rosedale

Kentucky

University of Louisville Medical Department[4].....Louisville

Louisiana

Tulane Univ. of Louisiana School of Med....New Orleans

Maine

Bowdoin Medical School.............Brunswick-Portland

Maryland

Johns Hopkins University Medical Department....Baltimore
University of Maryland School of Medicine and
the College of Physicians and Surgeons.......Baltimore

Massachusetts

Boston University School of Medicine................Boston
Medical School of Harvard University...............Boston
Tufts College Medical School.......................Boston

Michigan

Detroit College of Medicine and Surgery[5]............Detroit
University of Michigan Medical School.........Ann Arbor
University of Mich. Homeopathic Med. School....Ann Arbor

Minnesota

University of Minnesota Medical School.......Minneapolis

Mississippi

University of Mississippi School of Medicine*........Oxford

Missouri

St. Louis University School of Medicine..........St. Louis
University of Missouri School of Medicine*......Columbia
Washington University Medical School............St. Louis

Nebraska

John A. Creighton Medical College[6].................Omaha
University of Nebraska College of Medicine........Omaha

New Hampshire

Dartmouth Medical School*.......................Hanover

New York

Albany Medical College...........................Albany
Columbia Univ. Coll. of Phys. and Surgs....New York City
Cornell University Medical College.........New York City
Fordham University School of Medicine[7].....New York City
Long Island College Hospital[8]......................Brooklyn
Syracuse University College of Medicine..........Syracuse
University and Bellevue Hospital Med. Coll..New York City
University of Buffalo Department of Medicine.......Buffalo

North Carolina

University of North Carolina School of Med.* Chapel Hill
Wake Forest College School of Medicine*....Wake Forest

North Dakota

University of North Dakota School of Medicine*..University

Ohio

Ohio State University College of Medicine........Columbus
University of Cincinnati College of Medicine.....Cincinnati
Western Reserve University School of Medicine..Cleveland

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[1] Rating raised to Class A June 6, 1910.

* Gives only the first two years of the medical course.

[2] Rating raised to Class A Feb. 24, 1914; formerly the Atlanta Medical College.

[3] Class A rating restored Feb. 24, 1913.

[4] Rating raised to Class A June 6, 1910.

[5] Class A rating restored June 21, 1914.

[6] Class A rating restored Feb. 4, 1917.

[7] Class A rating restored Feb. 24, 1914.

[8] Class A rating restored June 21, 1914.

Oregon

University of Oregon Medical School..............Portland

Pennsylvania

Hahnemann Medical College and Hospital......Philadelphia
Jefferson Medical College of Philadelphia......Philadelphia
University of Pennsylvania School of Med....Philadelphia
University of Pittsburgh School of Medicine[9].....Pittsburgh
Woman's Medical College of Pennsylvania.....Philadelphia

South Carolina

Medical College of the State of South Carolina[10]..Charleston

South Dakota

University of South Dakota College of Medicine*..Vermilion

Tennessee

University of Tennessee College of Medicine[11]......Memphis
Vanderbilt University Medical Department.......Nashville

Texas

Baylor University College of Medicine[12]..............Dallas
University of Texas Department of Medicine.....Galveston

Utah

University of Utah School of Medicine*......Salt Lake City

Vermont

University of Vermont College of Medicine......Burlington

Virginia

Medical College of Virginia.....................Richmond
University of Virginia Department of Med....Charlottesville

West Virginia

West Virginia Univ. School of Medicine*[13]......Morgantown

Wisconsin

Marquette University School of Medicine[14]........Milwaukee
University of Wisconsin Medical School*........Madison

Total, 69.

CLASS B—COLLEGES NEEDING GENERAL IMPROVEMENTS TO BE MADE ACCEPTABLE

Arkansas

University of Arkansas Medical Department.....Little Rock

California

College of Medical Evangelists[15]....Loma Linda-Los Angeles
University of Southern California Medical Department (College of Physicians and Surgeons)...........Los Angeles

Illinois

Chicago College of Medicine and Surgery, School of Medicine of Loyola University[16]................Chicago
Hahnemann Medical College and Hospital[17].........Chicago

New York

New York Homeopathic Medical College and Flower Hospital[18].......................New York City
New York Medical College and Hospital for Women[19] ....New York City

North Carolina

Leonard Medical School*[20]............................Raleigh

Ohio

Eclectic Medical College.........................Cincinnati
Ohio State Univ. Coll. of Homeopathic Med.[21].....Columbus

Oklahoma

Univ. of Oklahoma School of Med.[22]..Norman-Oklahoma City

Pennsylvania

Temple University Department of Medicine[23]....Philadelphia

Tennessee

Meharry Medical College[24]..........................Nashville

Texas

Fort Worth School of Medicine[25]................Fort Worth

Total, 14.

CLASS C—COLLEGES REQUIRING A COMPLETE REORGANIZATION TO MAKE THEM ACCEPTABLE

California

College of Physicians and Surgeon...........San Francisco
Oakland College of Medicine and Surgery[26].........Oakland

Illinois

Chicago Hospital College of Medicine..............Chicago
Jenner Medical College[27]...............................Chicago

Massachusetts

College of Physicians and Surgeons..................Boston
Middlesex College of Medicine and Surgery[29].....Cambridge

Missouri

Kansas City University of Phys. and Surgs.[30]....Kansas City
Eclectic Medical University[31]...................Kansas City
National Univ. of Arts and Sciences Med. Dept.[32]...St. Louis
St. Louis College of Physicians and Surgeons[33]....St. Louis

Nebraska

Lincoln Medical College[34]............................Lincoln

Tennessee

University of West Tenn. Coll. of Med. and Surg..Memphis

Total 12.

CLASSIFICATION OF CANADIAN MEDICAL COLLEGES

Class A

University of Toronto Faculty of Medicine....Toronto, Ont.
McGill University Faculty of Medicine......Montreal, Que.

Class B

University of Manitoba, Manitoba Medical College[35]..................................Winnipeg, Man.
Dalhousie University Faculty of Medicine.....Halifax, N. S.
Queen's University Faculty of Medicine[36]......Kingston, Ont.
Western University Faculty of Medicine[37]......London, Ont.
Montreal School of Medicine and Surgery....Montreal, Que.
Laval University Faculty of Medicine..........Quebec, Que.

The University of Alberta at Edmonton, besides the premedical year, gives only the first two years of the medical course as measured by that of the medical schools of the United States. It has not been inspected.

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* Gives only the first two years of the medical course.

[9] Rating raised to Class A June 6, 1910.

[10] Class A rating restored Feb. 6, 1916.

[11] Rating raised to Class A June 21, 1914.

[12] Rating raised to Class A June 12, 1916.

[13] Class A rating restored Feb. 4, 1917.

[14] Rating raised to Class A Feb. 15, 1915.

[15] Rating raised to Class B. Feb. 3, 1918.

[16] The Chicago College of Medicine and Surgery was merged with the Bennett Medical College, School of Medicine of Loyola University, in September, 1917, retaining the combined title as now given.

[17] Rating dropped to Class B June 3, 1912.

[18] Rating dropped to Class B Feb. 15, 1915.

[19] Rating in Class B restored June 14, 1918; it had been dropped from Class B to Class C June 3, 1912. Reported closed in 1918.

[20] Rating raised to Class B June 21, 1914.

[21] Rating raised to Class B Feb. 4, 1917.

[22] Rating dropped to Class B June 3, 1912.

[23] Rating raised to Class B June 6, 1910.

[24] Rating dropped to Class B Feb. 24, 1914.

[25] Rating restored to Class B May 10, 1914. In 1918 it merged with the Baylor University College of Medicine.

[26] Rated in Class B June 6, 1910; rating dropped to Class C Feb. 3, 1918.

[27] Rated in Class C when last inspected—1912. Has recently refused reinspection. In December, 1917, it transferred its students to the Chicago Hospital College of Medicine. Both institutions are reported as "not in good standing" by the Illinois Department of Registration and Education.

[29] This is the medical department of the so-called "University of Massachusetts." It was rated in Class C, Feb. 4, 1918.

[30] Formerly the Central College of Osteopathy; in 1917 under an amended charter took the name of Central College Medical Department; assumed present title in 1918. Rated in Class C, March 15, 1918.

[31] An offshoot of this institution—the Kansas City College of Medicine and Surgery—was organized in 1915. It is reported not recognized by the Missouri State Board of Health. Since it is an offshoot of a Class C institution reported not recognized by the Missouri State Board of Health, no higher rating could be granted it pending an inspection which it has refused.

[32] Formerly known as the American Medical College. Extinct May, 1918.

[33] Rating dropped to Class C July 1, 1909. In 1915 it merged with the Medical Department of the National University of Arts and Sciences, but in 1917 was reestablished.

[34] Formerly known as the Cotner University Medical College.

[35] Rating dropped to Class B Feb. 6, 1916.

[36] Rating dropped to Class C Feb. 6, 1916; restored to Class B Feb. 3, 1918.

[37] Rating raised to Class B Feb. 4, 1917.

DESCRIPTION OF MEDICAL COLLEGES

Below are given brief descriptions of the medical colleges in the United States and Canada that are legally chartered to teach medicine, several of which do not grant degrees. The name, address, year of organization, history and date when first class graduated are given in each instance. Unless otherwise stated, a class graduated each subsequent year. Where official reports have been received from the college, information regarding faculty, entrance requirements, length of term, fees, students (excluding specials and postgraduates), graduates, name of dean and next session is given without discrimination, regardless as to whether the college is sectarian or not. In a few instances in which such reports were not received, the information published is from other reliable sources. Figures for graduates include all who graduated since July 1, 1917. Extracts of rules and the membership of the Association of American Medical Colleges are shown following the list of colleges. Figures showing population of cities and states are taken from the United States Census Bureau's estimate for 1916. Statements have been added showing the preliminary requirements held by state licensing boards where those requirements include one or two years of collegiate work. Eight states, Alaska (Ter.), Illinois, Iowa, Michigan, New Jersey, North Dakota, Pennsylvania and Rhode Island require a year's hospital internship before a license will be granted.

ALABAMA

Alabama, population 2,348,273, has one medical college, the School of Medicine of the University of Alabama, located in Mobile, a city with a population of 58,221.

In order to secure licenses to practice medicine in Alabama, students matriculating in the session of 1915-16 and thereafter must have completed two years of work in an approved college of liberal arts, including courses in physics, chemistry, biology and a modern language, prior to entering on the study of medicine.

Mobile

University of Alabama School of Medicine, 550 St. Anthony Street. —*Organized in 1859 as the* Medical College of Alabama. Classes were graduated in 1861 and in all subsequent years except 1862 to 1868 inclusive. It was reorganized as the Medical Department of the University of Alabama in 1897. All property was transferred to the University of Alabama in 1907 when the present title was assumed. Two years of college work are required for admission. The faculty consists of 14 professors and 28 lecturers and assistants, a total of 42. The course *of study* covers four *years* of *thirty-two* weeks each. The total fees for each of the four years, respectively, are $165, $160, $160 and $185. The Dean is Dr. T. H. Frazer. *The* total registration for 1917-1918 was 44, graduates, 11. The fifty-third session begins Oct. 3, 1918, and ends June 4, 1919.

ARKANSAS

Arkansas, population 1,753,033, has one medical college, the Medical Department of the University of Arkansas, located in Little Rock, a city of 57,343.

To secure licenses to practice medicine in Arkansas, students matriculating in the session of 1918-19 and thereafter must have completed two years of collegiate work, including college courses in physics, chemistry, biology and a modern language before beginning the study of medicine. This applies to all graduates of 1922 and thereafter.

Little Rock

University of Arkansas Medical Department, Markham and Center Streets.—Organized in 1879 as the Medical Department of Arkansas *Industrial* University. It assumed the present title in 1899. In 1911 the College of Physicians and Surgeons united with it and the new school was made *an integral* part of the University of Arkansas. The first class was graduated in 1880. The faculty consists of 20 professors and 36 lecturers and assistants, total 56. *Entrance requirements* are two years of collegiate work beyond a four-year high school course. The course of study covers four years of thirty-two weeks *each*. The fees are $50 each year. The Dean is Dr. Morgan Smith. Total registration 1917-1918 was 52; graduates, 21. The fortieth session begins Sept. 16, 1918, and ends June 4, 1919.

CALIFORNIA

California, population 2,983,843, has five medical colleges. Three are located in San Francisco, a city of 463,516 inhabitants. They are Leland Stanford Junior University School of Medicine, College of Medicine of the University of California, and the College of Physicians and Surgeons. The College of Physicians and Surgeons, Medical Department of the University of Southern California is situated in Los Angeles, population 503,812. The College of Medical Evangelists is located at Loma Linda and Los Angeles.

To secure licenses to practice medicine in California under the "physician's and surgeon's" certificate, students matriculating in medical colleges in and after the session of 1915-16, prior to such matriculation, must have completed at least one year of recognized collegiate work including college courses in physics, chemistry, biology and a modern language. This applies to all graduates of 1919 *and thereafter.*

Berkeley-San Francisco

University of California Medical School, University Campus, Berkeley; Second and Parnassus Avenues, San Francisco.—Organized in 1863 as the Toland Medical College. The *first* class *graduated in* 1865. In 1872 it became the Medical Department of the University of *California*. *In 1909 the College of* Medicine *of the* University of Southern California, at Los Angeles, by legislative enactment, became a clinical department. This Los Angeles portion was changed to a graduate school in 1914. In 1915 the Hahnemann Medical College of the Pacific was merged, and elective chairs in homeopathic materia medica and therapeutics were provided for. Two years of collegiate work are required for admission. The work of the first year and a half is *given at Berkeley and the work of the last two and a half years* at San Francisco. The faculty is composed of 45 professors and 100 associates and assistants, a *total* of *137*. The course covers five years of nine months each, the fifth year to consist of an internship or of special work in a department of the medical school. Fees for the four years, respectively, are $200, $155, $150 and $150. The Dean is Dr. Herbert C. Moffitt, San Francisco. Total registration for 1917-1918 was 150; no graduates this year; *22* students who completed their fourth year work required to complete senior year as hospital intern before medical degree *is granted.* *The forty-sixth* session *begins* Oct. 1, 1918, *and* ends June 4, 1919.

Loma Linda-Los Angeles

College of Medical Evangelists.—*Organized in 1909.* The faculty numbers 50. The first class graduated in 1914. The course extends over four years of nine months each. Two years of college work are *required for admission. The total fees* for the four years, respectively, are $166, $161, $161 and $161. The Dean is Dr. P. T. Magan. The total registration for 1917-18 was 62; graduates, 21. The tenth session begins Sept. 1, 1918, and ends May 29, 1919.

Los Angeles

College of Physicians and Surgeons, Medical Department of the University of Southern California, 516 East Washington Street.— Organized in 1903, first class graduated in 1905; became Medical Department, University of Southern California, Aug. 11, 1909. The course covers four years of nine months each. Two years of collegiate work are *required for admission. The faculty consists of 21 professors* and 82 associate professors, lecturers and instructors, a total of 103. The fees for the four years, *respectively,* are $220, $217, $202 and $227. The Dean is Dr. Charles W. Bryson. The registration for 1917-18 was 92, graduates, 28. The next session begins Sept. 3, 1918, and ends June 12, 1919.

San Francisco

College of *Physicians* and Surgeons, 344 Fourteenth Street.— Organized in 1896. The first class graduated in 1897. The faculty numbers 40. The course covers four years of nine months each. The fees for each of the first three years are $192.50 and $217.50 for the fourth year. The Dean is Dr. H. D'Arcy Power. Registration for 1917-18 was 56; graduates, 16. The twenty-second session begins Aug. 12, 1918, and ends June 5, 1919. *Reported not recognized by licensing boards of thirty-six states.*

San Francisco-Palo Alto

Leland Stanford Junior University School of Medicine, University Campus, Palo Alto, and Sacramento and Webster Streets, San *Francisco.—Organized* in 1908 when, by an agreement, the interests of Cooper Medical College were taken over. The first class was graduated *in 1913.* The *faculty consists of* 33 professors and 39 lecturers, assistants, etc., a total of *72.* Three years of collegiate work are required for admission. The school has the quarter *system* and the completion of any three quarters constitutes a college year. The course covers five years of nine months each, including a year *of* practical or intern work The total fees for the first four years, respectively, are $200, $155, $150 and $150. The Dean is Dr. W. *Ophuls,* San Francisco. The total registration for 1917-18 was 82; graduates, 7. The ninth session begins Oct. 1, 1918, and ends June *17, 1919.*

COLORADO

Colorado, with a population of 975,190, has one medical college, the University of Colorado School of Medicine. The first two years of the course are given at Boulder, the seat of the university, while the last two, or clinical years, are given in Denver, which has a population of 260,800.

The Colorado State Board of Medical Examiners will register without further examination graduates of medical colleges in good standing who present licenses issued after examination by any other licensing board. The law permits any one, graduate or nongraduate, to try the board's written examination. No graduate of 1914 or thereafter is eligible to obtain a license in Colorado, or indorsement of his credentials, unless he graduated from a medical college which, at the time he matriculated, required at least two years' study, without conditions, in an accredited college of liberal arts, and this work must have included courses in physics, chemistry, biology and one modern language.

Boulder-Denver

University of Colorado School of Medicine.—Organized in 1883. Classes were graduated in 1885 and in all subsequent years except 1898 and 1899. Denver and Gross College of Medicine was merged Jan. 1, 1911. The faculty embraces 11 professors, 19 associate and assistant professors, and 36 lecturers, instructors and assistants, a total of 66. The work embraces a graded course of four years of nine months each. The entrance requirements are two years of college work counting toward a degree in arts in an accredited college or university. The tuition is $75 per year for residents of Colorado, $100 for nonresidents. Laboratory fees are $10 for each of the first two years. The Dean is Dr. Charles N. Meader. The total registration for 1917-18 was 77; graduates, 8. The thirty-seventh session for the Denver division, comprising the last two years, began June 17, 1918, and ends Feb. 7, 1919. The session of the Boulder division, for the first two years begins Sept. 30, 1918, and ends June 4, 1919.

CONNECTICUT

Connecticut, with a population of 1,254,926, has one medical college, Yale University, School of Medicine, located in New Haven, population 149,685.

Candidates for license to practice medicine in Connecticut who graduate in 1914 or thereafter are not eligible unless, prior to entering on the study of medicine, they had completed, in addition to an accredited four-year high school education, at least nine months of collegiate work including college courses in physics, chemistry and general biology.

New Haven

Yale University School of Medicine, 150 York Street and Congress Avenue and Cedar Street.—Chartered in 1810 as the Medical Institution of Yale College. Organized in 1812; instruction began in 1813; first class graduated in 1814. A new charter in 1879 changed the name to the Medical Department of Yale College. In 1884, the Connecticut Medical Society surrendered such authority as had been granted by the first charter. In 1887, Yale College became Yale University. The faculty consists of 23 professors and 61 lecturers and assistants, a total of 84. The requirements for admission are two years of collegiate work plus evidence of satisfactory completion of courses in general physics, general inorganic chemistry, general biology, organic chemistry and physical chemistry or laboratory physics, all reasonably equivalent to the courses in these subjects in Yale University. The student also must have a reading knowledge of German. The course covers four years of nine months each. The fees for the four years, respectively, are approximately $205, $200, $200 and $210. The Dean is Dr. George Blumer. The total registration for 1917-18 was 71; graduates, 8. The 106th session begins Sept. 26, 1918, and ends June 18, 1919.

DISTRICT OF COLUMBIA

The District of Columbia, population 366,631, has three medical colleges; George Washington University Medical School, Georgetown University, School of Medicine and Howard University, School of Medicine.

Washington

George Washington University Medical School, 1325 H Street, N.-W.—Organized in 1825 as the Medical Department of Columbian College. Also authorized to use the name National Medical College. Classes were graduated in 1826 and in all subsequent years, except 1834 to 1838, and 1861 to 1863, inclusive. The original title was changed to Medical Department of Columbian University in 1873. In 1903 it absorbed the National University Medical Department. In 1904, by an act of Congress, the title of George Washington University was granted to the institution. The faculty is composed of 40 professors and 55 instructors, demonstrators and assistants, a total of 95. Two years of collegiate work are required for admission. The course covers four years of thirty-two weeks each. The total fees are $175 each year. The Dean is Dr. William C. Borden. The total registration for 1917-18 was 107; graduates, 13. The ninety-seventh session begins Sept. 25, 1918, and ends June 11, 1919.

Georgetown University School of Medicine, 920 H Street, N.-W.—Organized in 1851. The first class graduated in 1852. The faculty contains 23 professors, 67 instructors and assistants; total, 90. Two years of collegiate work are required for entrance. The course of study covers four terms of eight and one-half months each. The fees for the first year are $190, and for each of the other three years, $175. The Dean is Dr. George M. Kober. The registration for 1917-18 was 69; graduates, 17. The sixty-eighth session begins Sept. 24, 1918, and ends June 11, 1919.

Howard University School of Medicine, Fifth and W Streets, N.-W.—Chartered in 1867. Organized in 1869. The first class graduated in 1871. Colored students compose a majority of those in attendance. The faculty comprises 16 professors and 22 lecturers and assistants, 38 in all. The admission requirements are two years of collegiate work, including physics, chemistry, botany and zoology, English and two years of French or German. The course covers four years of thirty-two weeks each. The fees of each of the four sessions, respectively, are $140, $130, $130 and $137. The Dean is Dr. Edward A. Balloch. Registration for 1917-18 was 114; graduates, 27. The fifty-first session begins Oct. 1, 1918, and ends June 4, 1919.

GEORGIA

Georgia, population 2,875,953, has two medical colleges, University of Georgia, Medical Department, located in Augusta, population 50,245, and the Emory University School of Medicine in Atlanta, a city of 190,558.

Atlanta

Emory University School of Medicine, 94 N. Butler Street.—Organized in 1854. Classes graduated 1855 to 1861, when it suspended. Reorganized in 1865. A class graduated in 1865 and each subsequent year except 1874. In 1898 it merged with the Southern Medical College (organized in 1878), taking the name of Atlanta College of Physicians and Surgeons. In 1913 it merged with the Atlanta School of Medicine (organized in 1905), reassuming the name of Atlanta Medical College. Became the Medical Department of Emory University in 1915; assumed present title in 1917. Two years of collegiate work are required for entrance. The faculty numbers 106. The course of study is four years of thirty-two weeks each. The fees for each of the four years, respectively, are $172, $160, $155 and $180. The Dean is Dr. W. S. Elkin. Total registration for 1917-18 was 128; graduates, 27. The next session begins Sept. 23, 1918, and ends June 1, 1919.

Augusta

University of Georgia, Medical Department, University Place.—Organized in 1828 as the Medical Academy of Georgia, the name being changed to the Medical College of Georgia in 1829. Since 1873 it has been known as the Medical Department of the University of Georgia. Entire property transferred to the university in 1911. Classes were graduated in 1833 and in all subsequent years except 1862 and 1863. The faculty includes 18 professors and 35 assistants, 53 in all. Two years of collegiate work are required for entrance. The course is four years of thirty-four weeks each. Fees are $150 each year for nonresidents of Georgia, for residents the total fees for each of the four years are $60. The Dean is Dr. W. H. Doughty, Jr. The total registration for 1917-18 was 70; graduates, 6. The Eighty-seventh session begins Sept. 8, 1918, and ends June 5, 1919.

ILLINOIS

Illinois, population 6,193,626, has six medical colleges, two of which give instruction at night, all located in Chicago, a city of 2,497,722 inhabitants, and are as follows: Rush Medical College, Northwestern University Medical School, University of Illinois College of Medicine, Hahnemann Medical College and Hospital, Chicago College of Medicine and Surgery (School of Medicine of Loyola University), and the Chicago Hospital College of Medicine.

To be eligible for license to practice medicine in Illinois, students matriculating in the sessions of 1915-16 and of 1918-19, in addition to an accredited four-year high school education, must have completed, respectively, one year and two years of collegiate work including courses in physics, chemistry, biology and a modern language, to be taken either in a preliminary year given by a recognized medical college, or in an approved college of liberal arts. Graduates of 1923 and thereafter must have completed also a year's internship in a hospital.

Chicago

Rush Medical College.—This school was founded in 1837, organized in 1843, was the medical department of Lake Forest University from 1887 until 1898, when it became affiliated with the University of Chicago. The first class graduated in 1844. The faculty is composed of 107 professors, 167 associates, instructors, etc., a total of 274. The requirements for admission are two years of college work, including courses in college chemistry, physics and biology, and a reading knowledge of German or French. Classes are limited to 100 students in each of the freshman and sophomore classes, and to 120 students in each of the clinical years. No application for admission is accepted after September 1. The school operates under the "quarter system" in which the year is divided into four quarters of twelve weeks each; the completion of the work of these quarters gives credit for a college year. The course covers four years of eight and a half months each, and a fifth year, consisting of a hospital internship or of a fellowship in one of the departments. All freshman and sophomore studies are given at the University of Chicago. The clinical years are given in the building at the corner of Wood and Harrison streets. The tuition fees are $180 each year. A matriculation fee of $5 is paid but once, and there are incidentals amounting to from $5 to $7 annually. The Dean is Dr.

John M. Dodson. Total registration 1917-18 was 550; graduates, 42. Seventy-seven other students completed the work of the fourth year but will not receive their degrees till the hospital internship has been completed. The seventy-fifth session begins Oct. 1, 1918, and ends June 14, 1919.

Northwestern University Medical School, 2421 South Dearborn Street.—Organized in 1859 as the Medical Department of Lind University. First class graduated in 1860. In 1864 it became independent as the Chicago Medical College. It united with Northwestern University in 1869, but retained the name of Chicago Medical College until 1891, when the present name was taken. Became an integral part of Northwestern University in 1905. The faculty comprises 70 professors and 100 lecturers and assistants, a total of 170. The requirements for admission are such as will admit to the College of Liberal Arts of Northwestern University, plus two years of college work, including courses in physics, chemistry, biology and a modern language. The course covers four years of eight months each. The fees for the four years, respectively, are $190, $195, $190 and $206. The Dean is Dr. Arthur I. Kendall. The total registration for 1917-18 was 281; graduates, 62. The fifty-ninth session begins Oct. 1, 1918, and ends June 7, 1919.

University of Illinois College of Medicine, Honore and Congress Streets.—Organized in 1882 as the College of Physicians and Surgeons. The first class graduated in 1883. It became the Medical Department of the University of Illinois by affiliation in 1897 and an integral part in 1910. The relationship with the university was canceled in June, 1912, but restored in March, 1913, when the present title was assumed. The American Medical Missionary College was absorbed in 1910. Two years of collegiate work are required for admission. The year is divided into three divisions of four months each, the completion of the work of any two divisions counting as a college year. The faculty is composed of 29 professors, 75 assistants and instructors, a total of 104. The total fees for the four years, respectively, are $165, $160, $150 and $165. The Dean is Dr. Albert C. Eycleshymer. The total registration for 1917-18 was 270; graduates, 30. The thirty-seventh session begins Oct. 1, 1918, and ends June 1, 1919.

Chicago College of Medicine and Surgery, School of Medicine of Loyola University, Chicago.—Organized in 1868 as the Bennett College of Eclectic Medicine and Surgery. Eclecticism dropped and title of Bennett Medical College assumed in 1909. First class graduated in 1870, and a class graduated each subsequent year. Absorbed the Illinois Medical College in 1910 and the Reliance Medical College in 1911. In 1910 it became by affiliation the School of Medicine of Loyola University; the university assumed full control in 1915. Took over by purchase the Chicago College of Medicine and Surgery in 1917 and assumed present title. Two years of college work are required for admission. The dean is Dr. Lawrence Ryan. The total enrolment for 1917-18 was 448; graduates, 115. The next session begins Oct. 1, 1918, and ends May 31, 1919.

Hahnemann Medical College and Hospital of Chicago, 2811 Cottage Grove Avenue.—Organized in 1859. The first class was graduated in 1861. Absorbed the Chicago Homeopathic Medical College in 1904. The faculty includes 57 professors and 29 lecturers, assistants, etc., a total of 86. Two years of collegiate work are required for admission. The course extends over four years of eight months each. The tuition fees for the four years, respectively, are $176, $161.50, $176.50 and $191.50. The Dean is Dr. Joseph P. Cobb. The total registration for 1917-18 was 51; graduates, 15. The fifty-ninth session begins June 3, 1918, and ends June 1, 1919.

Chicago Hospital College of Medicine, an afternoon and night school, located at 3832 Rhodes Avenue.—Organized in 1911; chartered in 1912. In December, 1917, the classes of the Jenner Medical College were transferred to it. Not recognized by the Illinois Department of Registration and Education. Total registration for 1917-18 was 95; graduates, about 45. *Official reports indicate that the diplomas from this college are not recognized by the licensing boards of thirty-seven states.*

INDIANA

Indiana, population 2,826,154, has one medical college, the Indiana University School of Medicine, located at Indianapolis, a city of 271,708 people, except that the work of the first year is offered also at Bloomington, the seat of the University.

Candidates for license to practice medicine in Indiana who matriculated between Jan. 11, 1910, and Jan. 1, 1911, must have completed one year of collegiate work, in addition to an accredited four-year high school course, prior to beginning the study of medicine. Those matriculating subsequent to Jan. 1, 1911, must have completed two years of work in a recognized college of liberal arts.

Bloomington and Indianapolis

Indiana University School of Medicine.—Organized in 1903, but did not give all of the work of the first two years of the medical course until 1905. In 1907, by union with the State College of Physicians and Surgeons, the complete course in medicine was offered. In 1908 the Indiana Medical College, which was formed in 1905 by the merger of the Medical College of Indiana (organized in 1878), the Central College of Physicians and Surgeons (organized in 1879), and the Fort Wayne College of Medicine (organized in 1879), merged into it. The first class was graduated in 1908. The faculty consists of 68 professors and 95 lecturers, associates and assistants, a total of 163. Two years of collegiate work are required for admission. The work of the first year is emphasized only at Bloomington. The work of the other three years is all at Indianapolis. The fees for the four years, respectively, are $100, $100, $130 and $130. A fifth optional intern year leading to the "M.D. cum laude" has been added. The Secretary at Bloomington is Dr. B. D. Myers; the Dean is Dr. Charles P. Emerson, Indianapolis. The total registration for 1917-18 was 215; graduates, 35. The next session begins Sept. 15, 1918, and ends May 31, 1919.

IOWA

Iowa, population 2,224,771, has two medical colleges. The College of Medicine and the College of Homeopathic Medicine of the State University of Iowa, both located in Iowa City, population 12,033.

Candidates for license to practice medicine in Iowa who graduated subsequent to Jan. 1, 1915, must have completed two years of work in an approved college of liberal arts prior to beginning the study of medicine, this preliminary college work to have included courses in physics, chemistry, biology and a foreign language.

Iowa City

State University of Iowa College of Medicine, University Campus.—Organized in 1869. First session began in 1870. First class graduated in 1871. Absorbed Drake University College of Medicine in 1913. The faculty is made up of 28 professors, 23 lecturers, demonstrators and assistants, a total of 51. Two years of collegiate work, including courses in physics, chemistry, biology and French or German, are required for admission. The course of study covers four years of thirty-six weeks each. The tuition fee for residents of Iowa is $85 per year and for nonresidents $100, plus a matriculation fee of $10 and a graduation fee of $10. The Dean is Dr. Lee Wallace Dean, Iowa City. Total registration for 1917-18 was 189; graduates, 27. The forty-ninth session begins Sept. 16, 1918, and ends June 6, 1919.

State University of Iowa College of Homeopathic Medicine.—Organized in 1877. The first class graduated in 1878. Class each subsequent year except 1914. The faculty is composed of 14 professors and 8 lecturers and assistants, a total of 22. The work of the first two years is taken in classes with the students of the College of Medicine of the State University of Iowa, and it has the same entrance and fee requirements. The Dean is Dr. George Royal. Total registration for 1917-18 was 9; graduates, 3. The forty-first session begins Sept. 16, 1918, and ends June 6, 1919.

KANSAS

Kansas, population 1,840,707, has one medical college. The School of Medicine of the University of Kansas gives its first two years in Lawrence, population 12,915, and the last two years in Rosedale, a suburb of the two Kansas Cities, which together have a population of 397,284.

Candidates for license to practice medicine in Kansas who matriculated in the session of 1910-11 and thereafter must present credentials showing that they matriculated in and graduated from a medical college which required for admission at least one year of collegiate work including college courses in physics, chemistry and biology in addition to an accredited four-year high school course. This applies to graduates of 1914 and thereafter. Students matriculating in 1918-19 (graduates of 1922) and thereafter will be required to have completed two years of premedical college work.

Lawrence and Rosedale

University of Kansas School of Medicine.—Organized in 1880. It offered only the first two years of the medical course until in 1905, when it merged with the Kansas City (Mo.) Medical College, founded in 1869, the College of Physicians and Surgeons, founded in 1894, and the Medico-Chirurgical College, founded in 1897. First class graduated in 1906. The clinical courses are given at Rosedale. Absorbed Kansas Medical College in 1913. The faculty, including lecturers and clinical assistants, numbers 65. The requirements for admission are two years of collegiate work. The course covers four years of nine months each. The total fees are, for each of the first two years, $60, and for the last two years $100, and for nonresidents, $80 for each of the first two years. The Dean is Dr. S. J. Crumbine; Associate Dean, Dr. M. T. Sudler. The total registration for 1917-18 was 145; graduates, 18. The thirty-ninth session begins Sept. 16, 1918, and ends June 11, 1919.

KENTUCKY

Kentucky, population 2,386,866, has one medical college, the University of Louisville Medical Department, situated in Louisville, a city of 238,910 inhabitants.

To be eligible for license to practice medicine in Kentucky all students matriculating in and after the session of 1914-15 must have completed, in addition to an accredited four-year high school course, at least one year's work in an approved college of liberal arts, including college courses in physics, chemistry, biology and a modern language.

Louisville

University of Louisville Medical Department, First and Chestnut Streets.—Organized in 1837 as the Louisville Medical Institute. The first class graduated in 1838, and a class graduated in each subsequent year except in 1863. In 1846 the present name was assumed. In 1907 it absorbed the Kentucky University Medical Department. In 1908 it absorbed the Louisville Medical College, the Hospital College of Medicine and the Kentucky School of Medicine. One year of collegiate work is required for admission. It has a faculty of 31 professors and 81 lecturers and assistants, a total of 112. The course covers four years of thirty-two weeks each. The fees for each of the four years, respectively, are $175, $176, $179.25 and $182.35. The Dean is Dr. Henry Enos Tuley. The total registration for 1917-18 was 99; graduates, 16. The next session begins Sept. 24, 1918, and ends June 5, 1919.

LOUISIANA

Louisiana, having a population of 1,843,042, contains one medical college, the School of Medicine of the Tulane University of Louisiana, situated in New Orleans, a city of 371,747.

Candidates for license to practice medicine in Louisiana who graduate in 1919 and 1922 must present evidence that they have successfully completed, at an approved college or university, respectively, one year and two years of work including biology, physics, chemistry and a modern language, before entering on the study of medicine. These requirements apply to all students who matriculated, respectively, in 1915 and 1918.

New Orleans

Tulane University of Louisiana School of Medicine, University Campus and 1551 Canal Street.—Organized in 1834 as the Medical College of Louisiana. Classes were graduated in 1835 and in all subsequent years except 1863-65, inclusive. It was transferred to the Medical Department of the University of Louisiana in 1847 and became the Medical Department of the Tulane University of Louisiana in 1884. Present name in 1913, when it became the School of Medicine of the College of Medicine of the Tulane University of Louisiana. The faculty has 50 professors and 81 assistant professors, instructors, demonstrators, etc., a total of 131. The course covers four years of thirty-two weeks each. Two years of collegiate work are required for admission. Total fees for each of the four years, respectively, are $200, $200, $200 and $230. The Dean is Dr. Isadore Dyer. The total registration for 1917-18 was 275; graduates, 63. The eighty-fourth session begins Sept. 23, 1918, and ends June 4, 1919, for freshmen and sophomores. Junior and senior classes began in June, 1918, and will end in February, 1919.

MAINE

Maine, population 774,914, has one medical college, the Bowdoin Medical School, located in Brunswick and Portland, the latter having a population of 68,867.

Brunswick-Portland

Bowdoin Medical School. The Medical Department of Bowdoin College. The first two years are given at Bowdoin College, Brunswick, the last two at Portland, building located on Chadwick Street.—Organized in 1820 as the Medical School of Maine. The first class graduated in 1821. Present title assumed in 1915. The faculty numbers 57. Two years of collegiate work, including courses in physics, chemistry and biology are required for admission. The course covers four years of eight months each. The total fees for each of the four years, respectively, are $130, $126, $110 and $105. The Dean is Dr. Addison S. Thayer, 10 Deering Street, Portland. The total number of students in 1917-18 was 54; graduates, 18. The ninety-eighth session begins Oct. 10, 1918, and ends June 1, 1919.

MARYLAND

Maryland, with a population of 1,368,240, contains two medical colleges, located in Baltimore, a city with 589,621 inhabitants. They are as follows: Johns Hopkins University Medical Department, and the University of Maryland School of Medicine and College of Physicians and Surgeons, the last two having been merged.

To be eligbile to practice medicine in Maryland, all students matriculating in the session of 1914-15 and 1918-19, in addition to a four-year high school education, must have completed, respectively, one year and two years of college work including courses in physics, chemistry, biology and French or German, prior to beginning the study of medicine.

Baltimore

Johns Hopkins University Medical Department, Washington and Monument Streets.—Organized in 1893. The first class graduated in 1897. The faculty consists of 50 professors and 131 clinical professors, etc., a total of 181. The requirements for admission demand that the applicant either has (*a*) completed the chemical-biologic course which leads to the A.B. degree in the university, or (*b*) graduated at an approved college or scientific school and has a knowledge of French and German, physics, chemistry and biology, such as may be obtained from a year's course. The course extends over four years of eight and one-half months each. The total fees are $257 each year. The Dean is Dr. J. Whitridge Williams. Total registration for 1917-18 was 375; graduates, 87. The twenty-sixth sessions begins Oct. 1, 1918, and ends June 10, 1919.

University of Maryland School of Medicine and the College of Physicians and Surgeons, Lombard and Green Streets.—Organized in 1807 as the College of Medicine of Maryland. The first class graduated in 1810. In 1812 it became the University of Maryland School of Medicine. Baltimore Medical College was merged into it in 1913. In 1915 the College of Physicians and Surgeons was merged and the present name assumed. The combined faculty numbers 189. Two years of collegiate work are required for admission. The course covers four years of eight months each. The total fees are $185 each year; graduation fee, $30. The Dean is Dr. J. M. H. Rowland. Total registration for 1917-18 was 266; graduates, 49. The one-hundred and twelfth session begins Oct. 1, 1918, and ends June 2, 1919.

MASSACHUSETTS

Massachusetts, population 3,747,564, has five medical colleges: Medical School of Harvard University, Boston University School of Medicine, Tufts College Medical School, College of Physicians and Surgeons and the Middlesex College of Medicine and Surgery. They are all situated in Boston, a city of 756,476, except the last named which is in Cambridge.

Boston

Medical School of Harvard University, 240 Longwood Avenue.—Organized in 1782. The first class graduated in 1788. It has a faculty of 76 professors and 139 instructors and assistants, a total of 215. Candidates for admission must present a college degree or two years of work leading to such a degree with standing in the upper third of the class. The college work must include a year of physics, biology, general chemistry, a half year of organic chemistry, and a reading knowledge of French or German. The total fees for each of the four years are $230, $225, $225 and $225. The Dean is Dr. David L. Edsall. The total registration for 1917-18 was 384; graduates, 106. The one hundred and thirty-seventh sessions begins Sept. 23, 1918, and ends May 31, 1919.

Boston University School of Medicine, 80 East Concord Street.—Organized in 1873. In 1874 the New England Female Medical College, founded in 1848, was merged into it. The first class graduated in 1874. Became nonsectarian in 1918. Two years of collegiate work are required for admission. The faculty includes 23 professors, 46 associates, etc., making a total of 69. The course covers four years of eight months each. Total fees for each of the four years, respectively, are $175, $162, $160 and $180. The Dean is Dr. John P. Sutherland. Total registration for 1917-18 was 58; graduates, 15. The forty-sixth session begins for the first three classes Oct. 3, 1918, and ends June 4, 1919. For the senior class the session began June 3, 1918, and will end about Feb. 1, 1919.

Tufts College Medical School, 416 Huntington Avenue.—Organized in 1893 as the Medical Department of Tufts College. The first class graduated in 1894. It has a faculty of 43 professors and 81 assistants, lecturers, etc., a total of 124. One year of collegiate work is required for admission. Two years of college work wil be required for the session of 1918-19 and thereafter. The course covers four years of eight months each. The total fees for each of the four years are $175, $164, $155 and $155. The Dean is Dr. Charles F. Painter. Total registration for 1917-18 was 372; graduates, 79. The twenty-third session begins Sept. 23, 1918, and ends May 29, 1919.

College of Physicians and Surgeons, 517 Shawmut Avenue.—Organized in 1880. The first class graduated in 1882. Total attendance of medical students during 1916-17 was about 53. There were 11 graduates. *This college has been reported not recognized by the Massachusetts Medical Society and by the licensing boards of thirty-nine states.*

Cambridge

Middlesex College of Medicine and Surgery, Cambridge.—Organized in 1914 under the charter of the Worcester Medical College, which became extinct in 1859. A class was graduated in 1915 and each subsequent year. Was closely related in its interests with an osteopathic college and granted a liberal advanced standing for work done in that and other osteopathic colleges. During 1917-18 it had a total enrolment of 84; graduates, 25. *This college has been reported as not recognized by the licensing boards of thirty-one states.*

MICHIGAN

Michigan, population 3,074,560, has three medical colleges. Two of these, the University of Michigan Department of Medicine and Surgery and the Homeopathic Medical College of the University of Michigan, are located at Ann Arbor, a city of 14,979 people. The Detroit College of Medicine and Surgery is located at Detroit, a city of 571,784 inhabitants.

To be eligible for license to practice medicine in Michigan, all students matriculating in and after the sessions of 1914-15 and 1918-19, in addition to an accredited four-year high school education, must have completed, respectively, one year and two years of work in an approved college of liberal arts, including college courses in physics, chemistry, biology and French or German, prior to beginning the study of medicine.

Ann Arbor

University of Michigan Medical School.—Organized in 1850 as the University of Michigan Department of Medicine and Surgery. The first class graduated in 1851. Present title assumed in 1915. It has a faculty composed of 25 professors and 74 associates, instructors, etc., a total of 99. The entrance requirements are two years of college work, including courses in chemistry, physics and biology, with laboratory work, and a reading knowledge of one modern language. The curriculum embraces four years of nine months each. The total fees for Michigan students for each of the four years, respectively, are $115, $105, $105 and $115, and for nonresidents, respectively, $150, $125, $125 and $135. The Dean is Dr. Victor C. Vaughan. The total registration for 1917-18 was 339; graduates, 66. The sixty-ninth session begins Oct. 1, 1918, and ends June 26, 1919.

University of Michigan Homeopathic Medical School.—Organized in 1875. The first class graduated in 1877. The work of the first two years is taken in the same classes with the Medical School of the University of Michigan, and the fees charged are the same. The entrance requirements are two years of collegiate work. The Dean is Dr. W. B. Hinsdale. The total registration for 1917-18 was 36; graduates, 14. The next session begins Oct. 1, 1918, and ends June 26, 1919.

Detroit

Detroit College of Medicine and Surgery, 250 St. Antoine Street.—Organized as the Detroit College of Medicine in 1885 by consolidation of Detroit Medical College, organized in 1868, and the Michigan College of Medicine, organized in 1880. Reorganized with present title in 1913. The first class graduated in 1886. In 1918 it became a municipal institution under the control of the Detroit Board of Education. Entrance requirements are two years of collegiate work. The faculty embraces 21 professors, 140 lecturers, etc., a total of 161. The course covers four years of eight months each. The fees for the four years, respectively, are $155, $150, $150 and $175. The Dean is Dr. W. H. MacCraken. The total registration for 1917-18 was 166; graduates, 20. The thirty-fourth session begins Oct. 12, 1918, and ends June 7, 1919.

MINNESOTA

Minnesota, population 2,296,024, contains one medical school, the University of Minnesota Medical School, situated in Minneapolis, a city of 363,454 inhabitants.

Candidates for license to practice medicine in Minnesota who graduated subsequent to June 1, 1912, in addition to an accredited four-year high school education, must have completed two years of work the equivalent of that done in the liberal arts department of the University of Minnesota, including courses in physics, chemistry and biology, prior to beginning the study of medicine.

Minneapolis

University of Minnesota Medical School.—Organized in 1883 as the University of Minnesota College of Medicine and Surgery, reorganized in 1888 by absorption of St. Paul Medical College and Minnesota Hospital College. The first class graduated in 1889. In 1908 the Minneapolis College of Physicians and Surgeons, organized in 1883, was merged. In 1909 the Homeopathic College of Medicine and Surgery was merged. Present title in 1913. The faculty includes 65 professors and 94 instructors and assistants, a total of 159. The curriculum covers four years of nine months each and a year's internship in an approved hospital. The entrance requirements are two years of university work, which must include one year each of physics, general chemistry, qualitative analysis, zoology or botany, and French or German, all in addition to a four-year high school course, including two years of Latin. Students entering hereafter will be required to secure a degree of B.S. or A.B. before the M.D. is granted. Total fees are $150 each year. The Dean is Dr. E. P. Lyon. The total registration for 1917-18 was 280; graduates, 38. The thirtieth session begins Sept. 10, 1918, and ends June 12, 1919.

MISSISSIPPI

Mississippi, population 1,964,122, has one medical college, the Department of Medicine of the University of Mississippi, which is located at Oxford, a city of 2,014 inhabitants.

Candidates for license to practice medicine in Mississippi who matriculate in the sessions of 1915-16 and of 1919-20 and thereafter, in addition to a standard four-year high school education, must have completed, respectively, one year and two years of work in an approved college or university, including courses in physics, chemistry, biology and a modern language, before entering on the study of medicine.

Oxford

University of Mississippi School of Medicine.—Organized in 1903. Gives only the first two years of the medical course. In 1908 a clinical department was established at Vicksburg, but was discontinued in 1910 after graduating one class. The session extends over eight and a half months. Entrance requirements for 1917-18 are one year of collegiate work in addition to an accredited four-year high school education; thereafter, two years of college work will be required. The total fees each year are $122. The faculty numbers 18. The Dean is Dr. W. S. Leathers. The total registration for 1917-18 was 57. The sixteenth session begins Sept. 18, 1918, and ends June 3, 1919.

MISSOURI

Missouri, population 3,420,143, has six medical colleges. St. Louis, population 757,309, contains three of these, viz., the School of Medicine of St. Louis University, Washington University Medical School, and the St. Louis College of Physicians and Surgeons. Kansas City, with a population of 297,847, has two colleges, the Kansas City College of Medicine and Surgery and the Kansas City University of Physicians and Surgeons. The School of Medicine of the University of Missouri is at Columbia, a town of 12,103 people.

Columbia

University of Missouri School of Medicine.—Organized at St. Louis in 1845; was discontinued in 1855, but was reorganized at Columbia in 1872. Teaching of the clinical years was suspended in 1909. The faculty includes 10 professors and 15 assistant professors, lecturers, etc., a total of 25. The course covers two years of nine months each. The entrance requirements are two years of college work including French or German, 8 hours; general zoology, 8 hours; physics, 8 hours; inorganic chemistry, 8 hours, and general bacteriology, 3 hours. Total fees are $73 for the first and $45 for the second year. The acting Dean is Dr. Guy L. Noyes. Total registration for 1917-18 was 78. The next session begins Sept. 17, 1918, and ends June 5, 1919.

Kansas City

Kansas City College of Medicine and Surgery, Eclectic, Twenty-Third and Holmes Streets.—Organized in 1915 as an offshoot of the Eclectic Medical University, a Class C medical school, now extinct. Total registration for 1917-18 was 96; graduates, 23. Since this school is an offshoot of a Class C medical college and is *reported not recognized by the Missouri State Board of Health and by the licensing boards of thirty-one other states,* no higher rating can be granted to it, pending an inspection which it has refused.

Kansas City University of Physicians and Surgeons, 729 Troost Street.—Originally chartered in 1903 as the Central College of Osteopathy; charter amended in 1917, by which it obtained the right to grant degrees in medicine, and the name was changed to the Central College Medical Department. Present title in 1918. Very liberal advanced standing allowed for work done in osteopathic colleges. There were 45 medical students enrolled in 1917-18, of whom 12 graduated. Rated in Class C by the Council on Medical Education. *Reported not recognized by the licensing boards of Missouri and of twenty-seven other states.*

St. Louis

Washington University Medical School, Kingshighway and Euclid Avenue.—Organized in 1842 as the Medical Department of St. Louis University. In 1835 it was chartered as an independent institution under the name of St. Louis Medical College. The first class graduated in 1843. In 1891 it became the Medical Department of Washington University. In 1899 it absorbed the Missouri Medical College. The faculty comprises 31 professors and 74 lecturers, instructors, etc., a total of 105. Two full years of college work are required for admission, including courses in English, physics, chemistry and biology and a reading knowledge of German. The course is four years of eight months each. The total fees for the four years are, respectively, $205, $200, $200 and $205. The Dean is Dr. Philip A. Shaffer. The total registration for 1917-18 was 136; graduates, 30. The next session begins Sept. 6, 1918, and ends June 12, 1919.

St. Louis University School of Medicine, 1402 South Grand Avenue.—Organized in 1901 as the Marion-Sims-Beaumont Medical College by union of Marion Sims Medical College, organized in 1890, and Beaumont Hospital Medical College, organized in 1886. First class graduated in 1902. It became the Medical Department of St. Louis University in 1903. The faculty is composed of 44 professors, 77 lecturers and assistants, a total of 121. One year of college subjects preliminary to the four years of medical subjects is given in the medical school. Two years of collegiate work are required for admission. The curriculum covers four years of thirty-two weeks each. Summer semester optional. The total fees are $175 each year. The Dean is Dr. Hanau W. Loeb. The total registration for 1917-18 was 276; graduates, 58. The next session begins Oct. 1, 1918, and ends June 1, 1919.

St. Louis College of Physicians and Surgeons, Jefferson and Gamble Streets.—Organized in 1869. Classes graduated in 1870 and each subsequent year until 1873, when it suspended. Reorganized in 1879. Classes graduated in 1880 and subsequent years until 1915 when it merged with the Medical Department of the National University of Arts and Sciences. Reestablished in 1916. Total fees each year are $140; graduation fee, $25. The dean is Dr. Waldo Briggs. Registration during 1917-18 was 72; graduates, 40. The next session begins Oct. 1, 1918, and Ends June 3, 1919. *This college is reported as not recognized by the licensing boards of Missouri and thirty-four other states.*

NEBRASKA

Nebraska, population 1,277,750, has three medical colleges. The University of Nebraska College of Medicine and the John A. Creighton Medical College of Omaha, population 165,470, and the Lincoln Medical College at Lincoln, population 46,515.

Lincoln

Lincoln Medical College, Eclectic, corner Thirteenth and P Streets, Lincoln.—Organized in 1890 as the Lincoln Medical College. The first class graduated in 1891. Became Cotner University Medical College in 1911. Affiliation with Cotner University canceled and present title resumed in 1915. The Dean is Dr. F. L. Wilmeth. The total registration for 1917-18 was about 16; graduates, 3. *Official reports indicate that this college is not recognized by the licensing boards of Nebraska and thirty-one other states.*

Omaha

John A. Creighton Medical College, Fourteenth and Davenport Streets.—It is the Medical Department of Creighton University. Organized in 1892. The first class graduated in 1893. It has a faculty of 19 professors and 41 associates, lecturers and assistants, a total of 60. Two years of collegiate work are required for admission. The course of study embraces four years of eight months each. Continuous session adopted for seniors only. The total fees each year for the four years are, respectively, $157, $147, $147 and $152. The Dean is Dr. Herman von W. Schulte. Total registration for 1917-18 was 90; graduates, 16. The thirty-seventh session begins Sept. 23, 1918, and ends May 31, 1919.

University of Nebraska College of Medicine, Forty-Second Street and Dewey Avenue.—Organized in 1881 as the Omaha Medical College. The first class graduated in 1882. It became the Medical Department of Omaha University in 1891. In 1902 it affiliated with the University of Nebraska, with the present title. The first two years were given at Lincoln and the last two in Omaha until 1913, when all four years were transferred to Omaha. The faculty is composed of 22 professors and 42 lecturers and instructors, total 64. Two years of collegiate work are required for admission, including courses in physics, chemistry, zoology and a modern language. The fees for each of the four years, respectively, are $135, $130, $120 and $120. The Dean is Dr. Irving S. Cutter. Total registration for 1917-18 was 180; graduates, 27. The next session begins Sept. 20, 1918, and ends May 26, 1919.

NEW HAMPSHIRE

New Hampshire, population 443,467, has one medical college, located at Hanover, population 2,075.

To be eligible for license to practice medicine in New Hampshire, all students matriculating in and after the session of 1915-16, in addition to a four-year high school education, must have completed at least two years of work in an approved college of liberal arts, prior to beginning the study of medicine.

Dartmouth Medical School.—Organized as New Hampshire Medical Institute in 1797. The first class graduated in 1798. It is under the control of the trustees of Dartmouth College. Clinical teaching was discontinued in 1914. The faculty is made up of 10 professors and 2 instructors, a total of 12. Two years of collegiate work are required for admission. The course covers nine calendar months in each year, or eight months of actual teaching. Candidates for the B.S. degree in Dartmouth College may substitute the work of the first two years in medicine for that of the junior and senior years in the academic department. Candidates for the A.B. degree may make a similar saving of one year. The fees for the two years in medicine are, respectively, $172 and $173. Dean, Dr. John M Gile; Secretary, Colin C. Stewart. The total registration for 1917-18 was 31. The next session opens Sept. 19, 1918, and ends June 8, 1919.

NEW YORK

New York State, population 10,366,778, has nine medical colleges. Six of these, College of Physicians and Surgeons (Columbia University), Long Island College Hospital, New York Homeopathic Medical College and Hospital, Cornell University Medical College, the University and Bellevue Hospital Medical College and Fordham University School of Medicine, are located in New York City, population 5,602,841. Albany Medical College is located in Albany, a city of 110,199 people. The University of Buffalo Medical Department is situated in Buffalo, population 468,558. The College of Medicine, Syracuse University, is in Syracuse, a city of 155,624 inhabitants.

To be eligible to receive a license to practice in New York, students matriculating in 1918-19 and thereafter must have completed two years of college work before entering on the study of medicine. This applies to graduates of 1922 and thereafter.

Albany

Albany Medical College, 58-64 Eagle Street.—Organized in 1838. The first class graduated in 1839. It became the Medical Department of Union University in 1873. In 1915 Union University assumed full control. The faculty is composed of 8 professors and 52 instructors, assistants, etc., a total of 60. One year of collegiate work, including college courses in physics, chemistry, biology, English, and French or German, is required for admission. Two years of college work are required for admission. The curriculum covers four years of eight months each. The fees for the four years, respectively, are $195, $180, $165 and $165. The Dean is Dr. Thomas Ordway. The total registration for 1917-18 was 81; graduates, 11. The eighty-eighth session begins Sept. 23, 1918, and ends June 9, 1919.

Buffalo

University of Buffalo Medical Department, High Street, near Main.—Organized in 1846. The first class graduated in 1847. It absorbed the Medical Department of Niagara University in 1898. The faculty is composed of 30 professors and 77 lecturers, assistants etc., a total of 107. Two years of collegiate work, including college courses in physics, chemistry, biology, English and French or German are required for admission. The course covers four years of eight months each. The total fees for each of the four years are $200, matriculation fee $5. The Dean is Dr. C. Sumner Jones. Total registration for 1917-18 was 215; graduates, 26. The seventy-third session begins Sept. 23, 1918, and ends June 6, 1919.

New York

Columbia University College of Physicians and Surgeons, 437 West Fifty-Ninth Street.—Organized in 1807 by the regents of the University of the State of New York as their medical department. The first class graduated in 1811. In 1860 it became, by affiliation, the Medical Department of Columbia College. It was made a permanent part of Columbia College by legislative enactment in 1891. That institution became Columbia University in 1896. The faculty is composed of 89 professors and 172 instructors, demonstrators, etc., a total of 261. Two years of collegiate work, including courses in physics, chemistry, biology, English and either French or German are required for admission. The work covers four years of eight months each. Continuous sessions adopted for seniors only. The Dean is Dr. Samuel W. Lambert. The total fees for the four years, respectively, are $265, $251, $250 and $275. Total registration for 1917-18 was 589; graduates, 113. The one hundred and eleventh session begins Sept. 25, 1918, and ends June 5, 1919.

Cornell University Medical College, First Avenue and Twenty-Eighth Street, New York City, and Ithaca.—Organized in 1898. The first class was graduated in 1899. The work of the first year may be taken either in Ithaca or New York. The faculty is composed of 51 professors and 77 assistants, lecturers, instructors, etc., a total of 128. All candidates for admission must be graduates of approved colleges or scientific schools or seniors of approved colleges which will permit them to substitute the first year of this medical school for the fourth year of their college course and will confer on them the Bachelor degree on the completion of the year's work. The candidate must also have such knowledge of physics, inorganic chemistry and biology as may be obtained in college by a year's course in these subjects when accompanied by laboratory work. The fees for each of the four years are, respectively, $190, $185, $185 and $200. The Dean is Dr. William M. Polk. Total registration for 1917-18 was 187; graduates, 32. The twenty-first session begins Oct. 1, 1918, and ends June 13, 1919.

Fordham University School of Medicine, Bathgate Avenue and Fordham Road.—Organized in 1905 as the School of Medicine of St. John's College. Present title assumed in 1907. First class graduated in 1909. The faculty consists of 60 professors and 70 lecturers and assistants, a total of 130. The course of instruction covers four years of eight and a half months each. Continuous session for seniors only. Total fees for the four years, respectively, are $256, $241, $235 and $235. Two years' work in a recognized college of liberal arts, including college courses in physics, chemistry and biology, are required for admission. The Dean is Dr. Joseph Byrne. The total registration for 1917-18 was 279; graduates, 63. The fourteenth session begins Sept. 27, 1918, and ends June 10, 1919.

Long Island College Hospital, Henry and Amity Streets, Brooklyn.—Organized in 1858. The first class graduated in 1860. It has a faculty of 20 professors and 108 assistants, instructors, etc., a total of 128. Two years of collegiate work, including college courses in physics, chemistry and biology, are required for admission. The course covers four years of eight months each. Fees: first year, $255; second year, $250; third, $250, and $275 for the fourth year. The secretary is Dr. Otto V. Huffman. Total registration for 1917-18 was 345; graduates, 46. The sixty-first session begins Sept. 23, 1918, and ends May 29, 1919.

New York Homeopathic Medical College and Flower Hospital, Eastern Boulevard, between Sixty-Third and Sixty-Fourth Streets.—Organized in 1858. Incorporated in 1860 as the Homeopathic Medical College of the State of New York. The title, New York Homeopathic Medical College, was assumed in 1869. Present title assumed in 1908. The first class graduated in 1861. Total registration for 1917-18 was 170; graduates, 26. The fifty-ninth session begins Sept. 25, 1918, and ends May 23, 1919.

University and Bellevue Hospital Medical College, 338 East Twenty-Sixth Street.—Organized in 1898 by the union of the New York University Medical College, organized in 1841, and the Bellevue Hospital Medical College, organized in 1861. It is the Medical Department of New York University. First class graduated in 1899. The faculty is composed of 61 professors and 85 instructors, etc., in all 146. The course covers four years of eight months each. Entrance requirements are two years of collegiate work, in addition to a standard four-year high school course, including college courses in physics, chemistry and biology. The fees are $225 per year. The Dean is Dr. Samuel A. Brown. Total registration for 1917-18 was 491; graduates, 92. The next session begins Sept. 25, 1918, and ends June 11, 1919.

Syracuse

Syracuse University College of Medicine, 307-311 Orange Street.—Organized in 1872, when the Geneva Medical College, chartered in 1834, was removed to Syracuse, under the title "The College of Physicians and Surgeons of Syracuse University." Present title assumed in 1875, when a compulsory three-year graded course was established. The first class graduated in 1873 and a class graduated each subsequent year. In 1889 the amalgamation with the university was made complete. Course extended to four years in 1896. Two years of a recognized college course are required for admission. The course covers four years of thirty-five weeks each. The fees are $210 annually; graduation fee, $10. The faculty is composed of 28 professors and 57 associate and assistant professors, lecturers and instructors. The Dean is Dr. John L. Heffron. The total enrolment for 1917-18 was 125; graduates, 24. The forty-eighth session begins Oct. 1, 1918, and ends June 11, 1919.

NORTH CAROLINA

North Carolina, population 2,418,559, has three medical schools, each of which gives only the first two years of the medical course. The School of Medicine of the University of North Carolina is located at Chapel Hill, population 1,149. The Leonard Medical School is at Raleigh, population 19,980. Wake Forest College School of Medicine is at Wake Forest, population 1,443.

To be eligible for a license to practice medicine in North Carolina, graduates of 1918 and 1922 must have completed, respectively, one year and two years of college work including *courses in physics, chemistry and biology* in addition to 14 *units of high school* work before beginning the study of medicine.

Chapel Hill

University of North Carolina School of Medicine.—Organized in 1890. Until 1902 this school gave only the work of the first two years, when the course was extended to four years by the establishment of a department at Raleigh. The first class graduated in 1903. A class was graduated each subsequent year, including 1910, when the clinical department at Raleigh was discontinued. Two years of collegiate work are required for admission. The faculty is composed of 7 professors and 8 lecturers, assistants, etc., a total of 15. The fees for each year are $132. The Dean is Dr. I. H. Manning. The total registration for 1917-18 was 57. The thirty-third session begins Sept. 2, 1918, and ends May 30, 1919.

Raleigh

Leonard Medical School.—Colored. This department of Shaw University *was established in 1882. Classes were graduated in 1886,* 1888 and in all subsequent years, including 1914, when clinical teaching was discontinued. Two years of collegiate work are required for admission. It has a faculty of 12. The course covers two years of eight months each. The total fees for each year are $115. The Dean is Dr. George H. Stoddard. Total registration for 1917-18 was 5. The thirty-seventh session begins Oct. 1, 1918, and ends May 29, 1919.

Wake Forest

Wake Forest College School of Medicine.—This school was organized in 1902. The faculty, including the professors of chemistry, physics and biology, numbers 11. Only the first two years of the medical course are offered after the completion of freshman and sophomore college work, and on this combined course the B.S. degree is conferred. Each annual course extends over nine months. The fees for each year aggregate $115. The Secretary is E. B. Earnshaw. The total registration for 1917-18 was 35. The seventeenth session begins Sept. 3, 1918, and ends May 30, 1919.

NORTH DAKOTA

North Dakota, population 752,260, has one medical college, the School of Medicine of the University of North Dakota, which is situated at University, a suburb of Grand Forks, a city of 15,332 people. It gives only the first two years of the medical course.

Candidates for license to practice medicine in North Dakota who graduated in 1912 and thereafter, in addition to a four-year high school education, must have completed two years of work in an approved college of liberal arts including courses in Latin, physics, chemistry, botany and zoology, prior to beginning the study of medicine. Beginning in 1918 every applicant for a license must show evidence of having spent at least one year as an intern in a hospital.

University

University of North Dakota School of Medicine.—Organized in 1905. Offers only the first two years of the medical course. Two years' work in a college of liberal arts is required for admission. The fees are $50 each year. The faculty consists of 4 professors and 6 instructors, a total of 10. The Dean is Dr. Harley E. French. The total registration for 1917-18 was 30. The thirteenth session begins Sept. 22, 1918, and ends June 12, 1919.

OHIO

Ohio, population 5,181,220, has five medical colleges. Two of these, the Medical College of the University of Cincinnati and the Eclectic Medical College, are located in Cincinnati, a city of 410,476 inhabitants. Cleveland, population 674,073, contains one medical school, Western Reserve University School of Medicine. Columbus, population 214,878, contains the two departments of the Ohio State University, the College of Medicine and the College of Homeopathic Medicine.

Cincinnati

University of Cincinnati College of Medicine, Eden Avenue, Cincinnati General Hospital.—Organized in 1909 by the union of the Medical College of Ohio (founded in 1819) with the Miami Medical College (founded in 1852). The Medical College of Ohio became the *Medical Department* of the University of Cincinnati in 1896. Under a similar agreement, March 2, 1909, the Miami Medical College also merged into the University, when the title of Ohio-Miami Medical College of the University of Cincinnati was taken. Present title assumed in 1915. Two years of college work are required for admission. The faculty consists of 43 professors, 113 associates, assistants, etc., a total of 156. The course covers four years of eight months each. The fees for each of the first three years are $150 and for the fourth year, $170. The Dean is Dr. Christian R. Holmes. The total registration for 1917-18 was 140; graduates, 23. The next session begins Oct. 1, 1918, and ends June 14, 1919.

Eclectic Medical College, 630 West Sixth Street.—Organized in 1833 at Worthington as the Worthington Medical College. Removed to Cincinnati in 1843. In 1845 it was chartered as the Eclectic Medical Institute. In 1857 the American Medical College, organized in 1839, was merged into it, and in 1859 the Eclectic College of Medicine and Surgery, organized in 1856, was merged into it. In 1910 it assumed its present title. Classes were graduated in 1833 and in all subsequent years except 1839 to 1843, inclusive. It has a faculty of 27 professors and 9 lecturers and assistants, a total of 36. Two years of college work are required for admission. The course covers four years of eight months each. The fees are $120 for each year; matriculation fee, $5. The Secretary is Dr. John K. Scudder. Total registration for 1917-18 was 88; graduates, 22. The next session begins Sept. 12, 1918, and ends May 12, 1919.

Cleveland

Western Reserve University School of Medicine, 1353 East Ninth Street.—*Organized in 1843 as the Cleveland Medical College.* The first class graduated in 1844. It assumed the present title in 1881. In 1910 it absorbed the Cleveland College of Physicians and Surgeons. The faculty includes 18 professors and 93 lecturers, assistants, etc., a total of 111. The curriculum embraces four years of eight and one-half months each. Three years of college work are required for admission. The total fees for each of the four years are, respectively, $175, $160, $154 and $155. *The Dean is Dr. C. A. Hamann.* The total registration for 1917-18 was 181; graduates, 46. The seventy-sixth session begins Sept. 26, 1918, and ends June 12, 1919, for the first three year classes; for seniors the session began July 1, 1918, and ends about March 1, 1919.

Columbus

Ohio State University College of Medicine, 710 North Park Street. —*Organized in 1907 as the Starling-Ohio Medical College by the union* of Starling Medical College (organized 1847) with the Ohio Medical University (organized 1890). In 1914 it became an integral part of the Ohio State University with its present title. The faculty consists of 32 professors and 60 lecturers, demonstrators, etc., a total of 92. Two years of collegiate work are required for admission. The course covers four years of eight months each. Tuition fees are $152 each year. The Acting Dean is Francis L. Landacre. The total registration for 1917-18 was 124; graduates, 23. The next session begins Sept. 7, 1918, and ends June 17, 1919.

Ohio State University College of Homeopathic Medicine.—Organized in 1914, when the property of the Cleveland-Pulte Medical College of Cleveland was transferred to the Ohio State University. The faculty numbers 23. Two years of college work are required for admission. The students are taught largely in the same classes and by the same teachers as students of the College of Medicine during the first two years. Tuition fees are $152 each year. The Dean is Dr. Claude A. Burrett. The total registration for 1917-18 was 38; graduates, 14. The fourth session begins Sept. 7, 1918, and ends June 12, 1919.

OKLAHOMA

Oklahoma, population 2,245,968, has one medical college, the School of Medicine of the University of Oklahoma. The work of the first and second years is given in the academic laboratories at Norman, a city of 3,724 inhabitants. The work of the third and fourth years is given in Oklahoma City, which has a population of 92,943 and which is eighteen miles north of Norman.

To be eligible for license to practice medicine in Oklahoma, all students matriculating in 1914-15 and in 1917-18, in addition to a four-year high school education, must have completed, respectively, one year and two years of work in an approved college of liberal arts, *including courses in* physics, chemistry, biology and a *modern language* prior to beginning the study of *medicine.*

Norman and Oklahoma City

University of Oklahoma School of Medicine.—*Organized in 1900.* Gave only the first two years *of the* medical course at Norman until 1910, when a clinical department was established at Oklahoma City. It has a faculty of 49 professors and 16 instructors, a total of 65. *Two* years of collegiate work are required *for admission.* The course is four years *of nine months* each. An optional course of six years is offered for the degree of B.S. and M.D. The total fees for the four years are, respectively, $58, $40, $20 and $20. The Dean is Dr. Leroy Long, 325 East Fourth Street, Oklahoma City. The total registration for 1917-18 was 73; graduates, 13. The nineteenth session begins Sept. 17, 1918, and ends June 3, 1919.

OREGON

Oregon, population 848,866, has one medical college, the University of Oregon Medical School, located in Portland, a city of 295,463 population.

Portland

University of Oregon Medical School, Lovejoy and Twenty-Third Streets.—Organized in 1887. The first class graduated in 1888. A class graduated each subsequent year except 1898. Became an integral part of the University of Oregon in 1910. The Willamette University Medical Department was merged in 1913. It has a faculty of 17 professors and 65 lecturers, assistants, etc., a total of 82. Entrance requirements are two years of college work or its equivalent. The course is four years of eight months each. Fees: Matriculation, $5; tuition, $150 each year. The Dean is Dr. K. A. J. Mackenzie. The total registration for 1917-18 was 75; graduates, 21. The thirty-second session begins Oct. 1, 1918, and ends May 31, 1919.

PENNSYLVANIA

Pennsylvania, population 8,591,029, has six medical colleges. Of these, Philadelphia, having a population of 1,709,518, contains five, as follows: University of Pennsylvania School of Medicine, Jefferson Medical College, Hahnemann Medical College and Hospital, Woman's Medical College of Pennsylvania and Temple University Department of Medicine. The other school, the School of Medicine of the University of Pittsburgh, is situated in Pittsburgh, a city of 579,090.

To be eligible for license to practice medicine in Pennsylvania, students matriculating in the session 1914-15 and thereafter, in addition to a four-year high school education, must have completed a year's work either in an approved college of liberal arts or in a preliminary year in the medical college, including college courses in physics, chemistry and biology, before beginning the study of medicine. He must also have completed an internship of at least one year in an approved hospital.

Philadelphia

University of Pennsylvania School of Medicine, Thirty-Sixth Street and Hamilton Walk.—Organized in 1765. Classes were graduated in 1768 and in all subsequent years except 1772-79, inclusive. The original title was the Department of Medicine, College of Philadelphia. The present title, School of Medicine of the University of Pennsylvania, was adopted in 1909. It granted the first medical diploma issued in America. In 1916 it took over the Medico-Chirurgical College of Philadelphia to develop it as a graduate school. The faculty consists of 55 professors, associate, adjunct and assistant professors, and 149 lecturers, associates, instructors, etc., a total of 204. The minimum requirements for admission are a standard four-year high school course or its equivalent, plus two years of work in an approved College of Arts and Science, including courses in French or German, and in physics, chemistry and general biology or zoology, with appropriate laboratory exercises. The course embraces four years of study of thirty-four weeks each. The total fees for each of the four years are, respectively, $233, $210, $210 and $214. The Dean is Dr. William Pepper. Total registration for 1917-18 was 479; graduates, 115. The one hundred and fifty-third session begins Sept. 27, 1918, and ends June 18, 1919.

Jefferson Medical College, Tenth and Walnut Streets.—Organized in 1825 with its present title as the Medical Department of Jefferson College, Cannonsburg, Pa. Classes have been graduated annually since 1826. In 1838 a separate university charter was granted without change of title, since which time it has continued under the direction of its own board of trustees. It has a faculty of 27 professors, associate and assistant professors, and 146 associates, lecturers, demonstrators and instructors, a total of 173. Entrance requirements are a completed standard four-year high school or college preparatory course, or the equivalent, and in addition two years of work in an approved college of arts and science amounting to at least 60 semester hours, including specified courses in physics, chemistry and biology, with laboratory work amounting to 8 semester hours each. The course of study covers graded work of four years of eight and a half months each. The tuition is $210 a year with a matriculation fee of $5 paid on admission. The Dean is Dr. Ross V. Patterson. The total registration for 1917-18 was 466; graduates, 102. The ninety-fourth session begins Sept. 23, 1918, and ends June 7, 1919.

Woman's Medical College of Pennsylvania, Twenty-First and N. College Avenue.—Organized in 1850. Classes were graduated in 1852 and in all subsequent years except 1862. It has a faculty of 17 professors and 41 assistants, lecturers, etc., in all 68. Entrance requirements are a completed course in a standard secondary school, and in addition two years of collegiate work, including courses in physics, chemistry, biology and two foreign languages, one of which must be French, German or Spanish, physics, chemistry and biology. It has a each. Fees for each of the four years are, respectively, $197, $176, $183 and $179.50. The Dean is Dr. Martha Tracy. The total registration for 1917-18 was 43; graduates, 8. The seventy-ninth session begins Sept. 18, 1918, and ends June 4, 1919.

Hahnemann Medical College and Hospital of Philadelphia, 226 North Broad Street.—Organized in 1848 as the Homeopathic Medical College of Pennsylvania. In 1869 it united with the Hahnemann Medical College of Philadelphia, taking the latter title. Assumed present title in 1885. The first class graduated in 1849. Entrance requirements are a completed course in a standard secondary school and in addition two years devoted to college course, including English and either French, German or Spanish, physics, chemistry and biology. It has a faculty of 24 professors and 60 lecturers, instructors, etc., in all 84. The work covers four years of eight and a half months each. Total fees for each of the first years are $180 and for the fourth year $195. The Dean is Dr. William A. Pearson. The total registration for the college year 1917-18 was 140; graduates, 12. The seventy-first session begins Sept. 30, 1918, and ends May 30, 1919.

The Temple University Department of Medicine, Eighteenth and Buttonwood Streets.—Organized in 1901. The first class graduated in 1904. The faculty numbers 93. Two years of college work are required for admission. The fees for each of the four years, respectively, are $175, $170, $160 and $161. The Dean is Dr. Frank C. Hammond. The total registration for 1917-18 was 106; graduates, 22. The eighteenth session begins Sept. 26, 1918, and ends June 1, 1919.

Pittsburgh

University of Pittsburgh School of Medicine, Bigelow Boulevard.—Organized in 1886, as the Western Pennsylvania Medical College and in 1908 became an integral part of the University of Pittsburgh, removing to the university campus in 1910. The first class graduated in 1887. The faculty is composed of 17 professors and 113 associates, assistants, etc., 130 in all. Entrance requirements are two years of recognized college work, to have included essentially courses in English, chemistry (inorganic and organic), physics, biology and a reading knowledge of French or German, Italian or Spanish. It is possible for students to get the degree of B.S. and M.D. in six years. The course of study for medicine alone is four years of eight and a half months each. The tuition fee is $250 a year; matriculation fee, $15; diploma fee, $5. The Dean is Dr. Ogden M. Edwards, Jr. The total registration for 1917-18 was 147; graduates, 27. The thirty-third session begins Sept. 23, 1918, and ends June 6, 1919.

SOUTH CAROLINA

South Carolina, population 1,634,340, has one medical college, situated in Charleston, a city of 60,734 people.

Graduates of 1922 (matriculants of 1918-19) and thereafter, to be eligible for license to practice medicine in South Carolina must have completed, in addition to 14 units of high school work, two years in an approved college, including courses in English, physics, chemistry and biology.

Charleston

The Medical College of the State of South Carolina, 16 Lucas Street.—Organized in 1823 as the Medical College of South Carolina. The first class graduated in 1825. In 1832 a medical college bearing the present title was chartered and the two schools continued as separate institutions until they were merged in 1838. Classes were graduated in all years except 1862 to 1865, inclusive. In 1913, by legislative enactment, it became a state institution. It has a faculty of 34 professors and 27 lecturers, instructors, etc., a total of 61. The course covers four years of eight months each. Two years of collegiate work including courses in physics, chemistry, biology and a modern foreign language are required for admission, in addition to a standard high school preparation. The total fees are $150 for each of the first three years and $145 for the last year. The Dean is Dr. Robert Wilson, Jr. Total enrolment for 1917-18 was 55; graduates, 9. The ninetieth session begins Sept. 27, 1918, and ends June 5, 1919.

SOUTH DAKOTA

South Dakota, population 707,740, has one medical college, the University of South Dakota College of Medicine, located at Vermilion, a town of 2,376 people.

To be eligible for license to practice medicine in South Dakota, graduates of 1915 and thereafter must show that they matriculated in and graduated from medical colleges which required at least two years of collegiate work for admission, including courses in physics, chemistry, biology and a modern language. This affects all students who matriculated in the session of 1911-1912 and thereafter.

Vermilion

University of South Dakota College of Medicine.—Organized in 1907. Offers only the first two years of the medical course. Two years' work in a college of liberal arts are required for admission. The fees are $60 each year. The faculty numbers 10. The Dean is Christian P. Lommen, B.S. The total registration for 1917-18 was 19. The twelfth session begins Sept. 17, 1918, and ends June 11, 1919.

TENNESSEE

Tennessee, population 2,296,316, has four medical colleges. Of these, Vanderbilt University Medical Department and

Meharry Medical College are situated in Nashville, a city with a population of 117,057. The College of Medicine of the University of Tennessee and the University of West Tennessee College of Medicine and Surgery are located in Memphis, population 148,995.

To be eligible for a license to practice medicine in Tennessee students matriculating in the session of 1914-1915 and of 1918-1919 must have completed, respectively, one year of collegiate work, including courses in physics, chemistry, biology and a modern language, in addition to a four-year high school course before entering on the study of medicine.

Memphis

University of Tennessee College of Medicine, three buildings, 879 Madison Avenue.—Organized in 1876 at Nashville as Nashville Medical College. First class graduated 1877, and a class graduated each subsequent year. Became Medical Department of University of Tennessee 1879. In 1909 it united with the Medical Department of the University of Nashville to form the joint Medical Department of the Universities of Nashville and Tennessee. This union was dissolved in 1911. The trustees of the University of Nashville by formal action of that board named the University of Tennessee College of Medicine as its legal successor. In 1911 it moved to Memphis, where it united with the College of Physicians and Surgeons. The Memphis Hospital Medical College was merged in 1913. Lincoln Memorial University Medical Department was merged in 1914. The faculty includes 31 professors and 80 assistants, instructors, etc., a total of 111. Entrance requirements are a completed secondary education plus two years of collegiate work. Students taking the two-year premedical course in Knoxville may secure the B.S. and M.D. degrees. The total fees for the four years, respectively, are $107, $102, $102 and $127 for bona fide residents of the state, and $50 more each year for nonresidents. The Dean is Dr. A. H. Wittenborg. Total registration for 1917-18 was 84; graduates, 18. The next session begins Sept. 1, 1918, and ends June 4, 1919.

University of West Tennessee College of Medicine and Surgery, Colored. 1190 South Phillips Place.—Organized in 1900. The first class graduated in 1904, and a class graduated each subsequent year. It has a faculty of 22. The course covers four years. Two years of college work are required for admission. The fees are $65 per year; graduation, $10 extra. The Dean is Dr. M. V. Lynk. Registration for 1917-18 was 21; graduates, 8. The nineteenth session begins Sept. 23, 1918, and ends about May 20, 1919. *Official reports indicate that the diplomas of this college are not recognized as an acceptable qualification for the license by the licensing boards of thirty-seven states.*

Nashville

Vanderbilt University School of Medicine.—This school was founded in 1874. The first class graduated in 1875. The faculty consists of 25 professors and 54 lecturers, a total of 79. One year of collegiate work is required for admission. The course covers four years of nearly eight and a half months each. The total fees for the four years respectively are $156, $150, $150 and $175. The acting Dean is Dr. B. F. Hambleton. The total registration for 1917-18 was 115; graduates, 23. The forty-fifth session begins Sept. 30, 1918, and ends June 11, 1919.

Meharry Medical College. Colored. 1118 First Avenue, South. —This school was organized in 1876 as the Medical Department of Central Tennessee College, which became Walden University in 1900. First class graduated in 1877. Obtained new charter independent of Walden University in 1916. The faculty is made up of 13 professors and 13 instructors, demonstrators, etc., 26 in all. The work embraces four years of thirty weeks each. The total fees for each of the first three years are $70 and for the fourth year, $80. The President is Dr. G. W. Hubbard. Total registration for 1917-18 was 206; graduates, 77. The forty-third session begins Oct. 8, 1918, and ends May 22, 1919.

TEXAS

Texas, population 4,472,494, has two medical colleges. The University of Texas Department of Medicine is located at Galveston, a city of 41,863 inhabitants. The Baylor University College of Medicine is located in Dallas, population 124,527.

To be eligible for a license to practice medicine in Texas, students matriculating in the session of 1914-1915 and thereafter must have completed a year of collegiate work, including courses in physics, chemistry, biology and modern language, in addition to a standard four-year high school course, before entering on the study of medicine.

Dallas

Baylor University College of Medicine, 720 College Avenue.—Organized in 1900 as the University of Dallas Medical Department. In 1903 it took its present name and became the Medical Department of Baylor University at Waco. It acquired the charter of Dallas Medical College in 1904. The first class graduated in 1901. The faculty numbers 58. Entrance requirement is one year of college work in addition to a four-year high school education. For the session of 1918-19 and thereafter two years of collegiate work will be required for admission. The course is four years of eight months each. The fees are $155 each year; matriculation fee of $5, paid but once; graduation fee, $25. The Dean is Dr. E. H. Cary. Total registration for 1917-18 was 68; graduates, 13. The nineteenth session begins Sept. 30, 1918, and ends May 29, 1919.

Galveston

University of Texas Department of Medicine, Avenue B, between Ninth and Tenth Streets.—Organized in 1891. The first class graduated in 1892. It has a faculty of 18 professors and 22 lecturers, a total of 42. The curriculum embraces four years of eight months each. The entrance requirement is two years of collegiate work in addition to a four-year high school education. The total fees for the four years, respectively, are $78, $48, $30.50 and $18. The Dean is Dr. William S. Carter. Total registration for 1917-18 was 209; graduates, 40. The twenty-eighth session begins Oct. 1, 1918, and ends May 31, 1919.

UTAH

Utah, population 438,974, has one medical college, the School of Medicine of the University of Utah, situated at Salt Lake City, which has 117,399 people.

To be eligible to secure licenses to practice medicine in Utah, students matriculating in and after the session of 1912-1913, in addition to a four-year high school education, must have completed at least one year of collegiate work prior to beginning the study of medicine, this preliminary college work to have included college courses in physics, chemistry and biology.

Salt Lake City

University of Utah School of Medicine.—Organized in 1906. Gives only first two years of medical course. Each course covers thirty-six weeks. Two years of collegiate work are required for admission. The medical faculty consists of 10 professors and 13 lecturers and assistants, a total of 23. The fees are $95 each year for residents, and $120 each year for nonresidents. The Dean is Dr. Perry G. Snow. Total registration for 1917-18 was 34. The twelfth session begins Sept. 30, 1918, and ends June 7, 1919.

VERMONT

Vermont, population 364,322, has one medical school, located at Burlington, a town of 21,432 people.

Students matriculating in and after the sessions 1912-1913 and of 1918-1919 who desire to practice medicine in Vermont must have obtained a preliminary training, respectively, of one year and of two years of collegiate work, in addition to a standard four-year high school education, this additional years's work to include college courses in physics, chemistry and biology.

Burlington

University of Vermont College of Medicine, Pearl Street, College Park.—Organized with complete course in 1822. Classes graduated in 1823 to 1836, inclusive, when the school was suspended. It was reorganized in 1853 and classes were graduated in 1854 and in all subsequent years. The faculty numbers 38. Two years of college work in addition to a four-year high school education are required for admission. The course of study covers four years of nine months each. Continuous session for seniors only. The total fees for each of the first three years are $145, and $170 for the fourth year. The Dean is Dr. H. C. Tinkham. The total registration for 1917-18 was 95; graduates, 22. The next session begins Oct. 9, 1918, and ends June 4, 1919.

VIRGINIA

Virginia, population 2,202,522, has two medical colleges; one, the Department of Medicine of the University of Virginia, situated in Charlottesville, population 12,500, and the Medical College of Virginia at Richmond, population 156,687.

Only graduates of medical colleges registered by the Virginia State Board of Medical Examiners are eligible to obtain licenses to practice medicine in this state. Medical colleges to be so registered must require of all students admitted in the session of 1914-1915, completion of at least one year, and in the session of 1917-1918 and thereafter two years of collegiate work, including courses in physics, chemistry, biology and a modern language, preferably German, in addition to a four-year high school education.

Charlottesville

University of Virginia Department of Medicine.—Organized in 1827. Classes were graduated in 1828 and in all subsequent years except 1865. It has a faculty of 16 professors and 19 lecturers, instructors, assistants, etc., a total of 35. The requirements for admission are the completion of a four-year high school course, or its equivalent, and two years of college work devoted to English, mathematics, chemistry, physics and biology, and French or German. Continuous session adopted for seniors only. Total fees for each year are $150; matriculation fee, $10. The Dean is Dr. Theodore Hough. The total registration for 1917-18 was 100; graduates, 22. The ninetieth session begins Sept. 12, 1918, and ends June 11, 1919.

Richmond

Medical College of Virginia, Marshall and College Streets.—Organized in 1838 as the Medical Department of Hampden Sydney College. Present title was taken in 1854. In 1913 the University College of Medicine was merged. In 1914 the North Carolina Medical College was merged. Classes were graduated in 1840 and in all subsequent years. It has a faculty of 42 professors and 90 lecturers, instructors, etc., a total of 132. The requirement for admission is a four-year high school education and in addition two years of collegiate work, including courses in physics, chemistry, biology and French or German. The course embraces four years of eight months each. Fees, $169 for each of the first three years and $201 for the fourth. The Dean is Dr. Stuart McGuire. The total registration for 1917-18 was 137; graduates, 43, including 2 students of the North Carolina Medical College, who were granted degrees by the latter. The ninetieth session begins Sept. 18, 1918, and ends June 5, 1919.

WEST VIRGINIA

West Virginia, population 1,399,320, has one medical college, the School of Medicine of West Virginia University, which offers the first two years of the medical course. It is located at Morgantown, a city of 12,974 population.

Graduates of 1921 (matriculants of 1917-1918) and thereafter, in order to secure licenses to practice medicine in West Virginia, must have completed, in addition to a high school education, one year of collegiate work, including courses in physics, chemistry and biology, before entering on the study of medicine.

Morgantown

West Virginia University School of Medicine.—Organized in 1902, and gives only the first two years of the medical course. Two years of college work are required for admission and the Bachelor's degree will be granted to those who finish the two years in medicine. Session extends through nine months. The faculty numbers 12. Fees: For residents of the state, tuition $25 each year, matriculation, $5; for nonresidents, tuition, $40; matriculation fee, $10. The Dean is Dr. John N. Simpson. The total registration for 1917-18 was 36. The next session begins Sept. 23, 1918, and ends June 11, 1919.

WISCONSIN

Wisconsin, population 2,513,758, has two medical colleges, the Medical School of the University of Wisconsin, which teaches the first two years of the medical course, and is located at Madison, a city of 30,699 people, and the Marquette University School of Medicine, located at Milwaukee, a city of 436,535 people.

To be eligible for licenses to practice medicine in Wisconsin, students matriculating in the session of 1915-1916 (graduates of 1919) and thereafter, prior to entering a medical school, must have completed, besides a four-year high school course, two years of collegiate work, including courses in physics, chemistry, biology and a modern language.

Madison

University of Wisconsin Medical School.—Organized in 1907. Gives only the first two years of the medical course. For matriculation at least two years in a college of arts and science or an equivalent training are required, including two years of Latin, a reading knowledge of French or German, and at least a year's work in physics, chemistry and biology. It has a faculty of 15 professors and 13 lecturers, instructors, etc., a total of 30. Tuition fees: For residents of the state, $70 each year; for nonresidents, $195. The Dean is Dr. Charles R. Bardeen. The registration for 1917-18 was 120. The eleventh session begins Oct. 1, 1918, and ends June 25, 1919.

Milwaukee

Marquette University School of Medicine, Fourth Street and Reservoir Avenue.—Organized in December, 1912, by the merger of the Milwaukee Medical College and the Wisconsin College of Physicians and Surgeons. It has a faculty of 51 professors and 50 assistants, instructors, etc., a total of 101. The entrance requirements include, in addition to a four-year high school education, two years of college work, including courses in physics, chemistry, biology and a modern language. The curriculum is for four years of thirty-four weeks each. The total fees for the four years, respectively, are $195, $195, $195 and $225. The Dean is Dr. Louis F. Jermain. The registration for 1917-18 was 67; graduates, 7. The seventh session begins Sept. 17, 1918, and ends June 17, 1919.

PHILIPPINE ISLANDS

The Philippine Archipelago, having a population (estimated 1917) of 8,879,999, has two medical colleges, the University of the Philippines College of Medicine and Surgery and the Medical Faculty of the University of St. Thomas. They are located in the city of Manila, which in 1910 had a population of 234,409.

Manila

University of the Philippines College of Medicine and Surgery, Manila.—Organized in 1907 as the Philippine Medical School, under the support of the government of the Philippine Islands. Present title in 1910. The faculty includes 33 professors and 44 lecturers, assistants, etc., a total of 77. Two years of collegiate work leading to the degree of Bachelor of Arts are required for admission. The course extends over five years of nine months each with an additional sixth year of intern service. The Dean is Dr. Fernando Calderon. The total registration for 1917-18 was 205; graduates, 23. The twelfth session began July 1, 1918, and ends April 4, 1919.

CANADA

The Dominion of Canada has nine medical colleges, all but one of which require a five-year course, including in the first year courses in physics, chemistry and biology. This course is practically equal to that in the colleges of the United States which require one year of college work for admission, including the science courses named. None of the Canadian colleges has a minimum requirement of two years of collegiate work, or its equivalent, preliminary to or as a part of the medical course. The medical school at Edmonton, Alberta, gives only the first two years of the medical course, or three years, including the preliminary science year.

Alberta

University of Alberta, Faculty of Medicine, Strathcona.—Organized in 1913. Offers only the first three years of the five-year medical course, including the preliminary science year. The faculty numbers 19. Fees for the first year are $63; for the second and third years, each $88. The registrar is Cecil E. Race, B.A. The registration for 1917-18 was 48. The sixth session begins Oct. 1, 1918, and ends May 15, 1919.

Manitoba

Manitoba Medical College, Winnipeg.—It is the Medical Faculty of the University of Manitoba. Organized in 1883, first class graduated in 1886 and a class graduated each subsequent year. The faculty numbers 59. The fees are $175 for the first year and $160 for each subsequent year. The entire course covers five years, the first year including premedical courses in physics, chemistry and biology. The Dean is Dr. S. Willis Prowse. Total registration for 1917-18 was 128, graduates, 32. The next session begins Oct. 1, 1918, and ends May 9, 1919.

Nova Scotia

Dalhousie University, Faculty of Medicine, Halifax, N. S.—Organized in 1867. Incorporated as the Halifax Medical College in 1875. Reorganized as an examining faculty, separate from the Halifax Medical College in 1855. In 1911, in accordance with an agreement between the Governors of Dalhousie University and the Corporation of the Halifax Medical College, the work of the latter institution was discontinued and a full teaching faculty was established by the University. By an arrangement between Dalhousie University and the Provincial Medical Board of Nova Scotia, the final professional examinations are conducted conjointly by the university and the board, and candidates may qualify at the same time for their academic degrees and the provincial license. First class graduated in 1872. It has a faculty of 36 professors, lecturers and demonstrators. Requires matriculation examination and a graded course of five years, including premedical courses in physics, chemistry and biology. The fees are $110 for each of the first two years and $120 for each of the other three. Total registration for 1917-18 was 77; graduates 7. The Secretary is Prof. D. Fraser Harris. The next session begins Oct. 1, 1918, and ends May 29, 1919.

Ontario

University of Toronto, Faculty of Medicine, Toronto.—Organized in 1843 as the Medical Faculty of King's College. Abolished in 1853. Reestablished in 1887. In 1902 it absorbed Victoria University, Medical Department, and in 1903 absorbed Trinity Medical College. The course of study covers five years of eight months each, the first year including premedical courses in physics, chemistry and biology. It has a faculty of 51 professors and 154 lecturers, associates, etc., a total of 205. The fees are $150 each year; graduation fee, $20. The Secretary is Dr. A. Primrose. The total registration for 1917-18 was 522; graduates, 74. The next session begins Sept. 24, 1918, and ends June 1, 1919.

Queen's University Faculty of Medicine, Kingston.—Organized 1854, first class graduated in 1855, and a class graduated each subsequent year. The faculty was originally a department of the university, but a separation took place in 1866, when the school was conducted under the charter of the Royal College of Physicians and Surgeons at Kingston. In 1892 the school again became an integral part of Queen's University. The faculty includes 17 professors and 32 assistants, instructors, etc., a total of 49. The fees amount to $115 each year; fee for M.D., C.M. degrees, $30. The course covers five years of thirty teaching weeks each, the first year including courses in physics, chemistry and biology. The total registration in 1917-18 was 180; graduates, 22. The Dean is Dr. J. C. Connell. The next session begins Sept. 30, 1918, and ends June 6, 1919.

Western University, Faculty of Medicine, London.—Organized in 1881, first class graduated in 1883, and a class graduated each year subsequently. The Faculty of Medicine became an integral part of Western University in 1913. The faculty numbers 54. The course is five years of eight months each, the first year including premedical courses in physics, chemistry and biology. The total fees each year are $115; matriculation fee, $5; graduation fee, $25. The Dean is Dr. H. A. McCallum. Total registration for 1917-18 was 68; graduates, 11. The next session begins Oct. 1, 1918, and ends May 30, 1919.

Montreal

McGill University, Faculty of Medicine.—Founded 1824 as Montreal Medical Institution; became the Medical Faculty of McGill University in 1829; first class graduated under the university auspices in 1833. No session between 1836-39 owing to political troubles. In 1905 it absorbed the Faculty of Medicine of the University of Bishop College. The course extends over five years of eight months each, including the preliminary year devoted largely to physics, chemistry and biology. The faculty numbers 174. The total fees for the five years, respectively, are $174, $174, $174, $174 and $204. The total registration for 1917-18 was 365; graduates, 62. The Registrar is Dr. John W. Scane. The next session begins Oct. 1, 1918, and ends May 30, 1919.

Montreal School of Medicine and Surgery, Montreal.—Organized in 1843, incorporated in 1845. In 1891, by act of parliament, the Medical Faculty of Laval University (organized in 1878) was absorbed.

Present name assumed in 1911. A class was graduated in 1843 and in each subsequent year. The faculty numbers 80. The course extends over *five* years, including premedical courses in physics, chemistry and biology. The total fees for the five years, respectively, are $110, $118, $126, $126 and $138. The Dean is Dr. E. P. Lachapelle. The total registration for 1917-18 was 231; graduates 43. The next session begins Oct. 3, 1918, and ends June 30, 1919.

Quebec

Laval University Faculty of Medicine, Quebec.—The Quebec School of Medicine, organized in 1848, became in 1852 the Medical Department of Laval University; first class graduated in 1855, and a class graduated each subsequent year. The faculty numbers 35. The fees are $90 each year. The course extends over five years, the first year including courses in physics, chemistry and biology. The Dean is Dr. Edwin Turcot, Quebec. Total registration for 1917-18 was 103; graduates, 19. The next session begins June 4, 1918, and ends December, 1918.

THE ASSOCIATION OF AMERICAN MEDICAL COLLEGES

The requirements for admission to and graduation from colleges holding membership in this association are 14 units of high school work and two years (60 semester hours) of college work.

THE HIGH SCHOOL REQUIREMENT

(A) Required, 7 units.

	Units
Mathematics (minimum 2 years, maximum 3 years), algebra and plane geometry	2
English (minimum 2 years, maximum 4 years)	2
One foreign language (minimum 2 years, maximum 4 years)	2
History and civics	1
Total number of required units	7

(B) Elective, 7 units.

To be selected from the following:

	Units
English language and literature (in addition to the required work)	1 to 2
Foreign languages, additional, Latin, German, Italian, French, Spanish or Greek (not less than 1 year in any one)	1 to 4
Advanced mathematics, advanced algebra, solid geometry and trigometry (½ year each)	1
Natural science, chemistry 1 year, physics 1 year, and biology, botany, physiology and zoology (½ to 1 year each)	½ to 2
Earth science, physical geography, geology and agriculture (½ year to 1 year each)	½ to 1
Astronomy (½ year)	½
Drawing (½ to 1 year)	½ to 1
History, ancient, medieval and modern, and English (1 year each)	1 to 3
Economics (½ year)	½
Manual training (1 year)	1
Bookkeeping (½ to 1 year)	½ to 1

One unit in any subject is the equivalent of work in that subject for four or five periods per week for a year of at least thirty-six weeks, periods to be not less than forty-five minutes in length. One unit is equivalent to 2 semester credits or 2 points.

PREMEDICAL COLLEGE COURSE

(See paragraph "II. Premedical College Course" in the standards of the Council on Medical Education on page 543.)

Medical Curriculum

Division 1.—Anatomy, 720 Hours (18 per Cent.)

	Hours.	Lect. Rec. Dem.	Lab. Wk.
(a) Gross anatomy (including applied anatomy)	510	120	390
(b) Histologic and microscopic anatomy	135	30	105
(c) Embryology	75	30	45

Division 2.—Physiology and Chemistry, 600 Hours (15 per Cent.)

	Hours.	Lect. Rec. Dem.	Lab. Wk.
(a) Inorganic chemistry	180	60	120
(b) Organic chemistry	75	30	45
(c) Physiologic chemistry	104	30	75
(d) Physiology	240	140	100

Division 3.—Pathology, Bacteriology and Hygiene, 450 Hours (11.25 per Cent.)

	Hours.	Lect. Rec. Dem.	Lab. Wk.
(a) Bacteriology	135	30	105
(b) Hygiene and general dietetics	45	45	...
(c) Pathology	270	60	210

Division 4.—Pharmacology, Materia Medica and Therapeutics, 240 Hours (6 per Cent.)

	Hours.	Lect. Rec. Dem.	Lab. Wk.
(a) Pharmacology	105	40	65
(b) Materia medica and pharmacology	80	...	...
(c) Therapeutics	55	...	...

Division 5.—Medicine and Medical Specialties, 970 Hours (24.25 per Cent.)

	Hours.	Lect. Rec. Dem.	Lab. Wk.
(a) General medicine (including clinical microscopy)	640	...	...
(b) Pediatrics	150	...	...
(c) Nervous and mental diseases	105	...	...
(d) Jurisprudence, ethics and economics	30	...	...
(e) Dermatology and syphilis	45	...	...

Division 6.—Surgery and Surgical Specialties, 720 Hours (18 per Cent.)

	Hours.	Lect. Rec. Dem.	Lab. Wk.
(a) General surgery	510	...	...
(b) Orthopedic surgery	45	...	...
(c) Genito-urinary diseases	45	...	...
(d) Eye	60	...	...
(e) Ear, nose and throat	60	...	...

Division 7.—Obstetrics and Gynecology, 300 Hours (7.5 per Cent.)

	Hours.	Lect. Rec. Dem.	Lab. Wk.
(a) Obstetrics	195	...	...
(b) Gynecology (including some abdominal surgery)	105	...	...

Colleges may reduce the number of hours in any subject not more than 20 per cent. provided that the total number of hours in a division is not reduced. Where the teaching conditions in a college are best subserved, the subject may be, for teaching purposes, transferred from one division to another. When didactic and laboratory hours are specified in any subject, laboratory hours may be substituted for didactic hours.

(Note.—At the 1916 meeting the Committee on Education and Pedagogics was instructed to revise this curriculum to meet the present requirements.)

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Indiana University School of Medicine.
State University of Iowa College of Medicine.
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University of Louisville Medical Department.
Tulane University of Louisiana School of Medicine.
Johns Hopkins University Medical Department.
University of Maryland School of Medicine and College of Physicians and Surgeons.
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Tufts College Medical School.
Detroit College of Medicine and Surgery.
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University of Minnesota Medical School.
University of Mississippi School of Medicine.
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Medical College of Virginia.
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Marquette University School of Medicine.
University of Wisconsin Medical School.

The secretary-treasurer of the Association is Dr. Fred C. Zapffe, 3431 Lexington Street, Chicago.

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SATURDAY, AUGUST 17, 1918

MEDICAL EDUCATION IN THE UNITED STATES

We are publishing this week, for the eighteenth consecutive year, statistics regarding medical education in the United States. The great improvements that have been made during these eighteen years have been set forth in previous reports and are generally known to most of our readers. A study of the statistics will be well worth while, however, and, for those who may not have seen the previous reports, a few statements will be of interest.

Following the Civil War, the number of medical schools rapidly increased until in 1900 there were 160 medical schools in the United States—more than in all the rest of the world. Most of the schools were dependent on the students' fees for maintenance, and some were making profits from that source. Medical teaching was largely overshadowed by the energy expended to secure large enrolments. It was a common practice to issue pretentious announcements and extravagantly worded circulars, and even to send out solicitors who were paid commissions for such students as should be enrolled. Number, not quality, was sought; few students were so grossly ignorant that they could not gain admission. In fact, statistics show that in 1904 only four medical colleges were requiring any college work for admission, and only from 20 to 25 per cent. were actually requiring a four-year high school education. Under the methods pursued, it is not surprising that in 1904 the number of medical students reached the amazing total of 28,142, and that in that year there were graduated 5,747 physicians; nor is it a wonder that at the present time the Surgeon-General has to reject so many applicants for the Medical Reserve Corps because of their lack of professional training.

Entrance Requirements	Colleges				Students				Graduates			
	1904		1918		1904		1918		1904		1918	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Four-yr. high school ed. or less*	158	97.5	7	7.8	26,391	93.8	631	4.6	5,378	93.6	258	9.7
One year of college work	......	....	34	37.8	......	....	5,914	43.6	.....	....	1,147	43.0
Two years of college work	4	2.5	49	54.4	1,761	6.2	7,055	51.8	369	6.4	1,265	47.3
Totals	162	....	90	....	28,142	....	13,630	....	5,747	....	2,670[1]	....

* It is not probable that in 1904 more than about thirty colleges (20 per cent.) were actually requiring a four-year high school education as a minimum for admission.

The campaign of publicity started by The Journal in 1900 led, in 1904, to the creation of the Council on Medical Education, which was placed in charge of the campaign for improvement. Minimal and ideal standards of education were drawn up; the merger of from two to five medical schools into one in each of various cities and states was advocated; annual conferences for the discussion of educational problems were held; the need of additional endowments for medical education was shown, and, finally, all medical schools were inspected and classified. A wide publicity in the columns of The Journal and in reports and pamphlets was given to the conditions found and to the Council's classifications, and improvements since then have been rapid. At present, largely through mergers, the number of colleges has been reduced to ninety; the number of students has been reduced to 13,630, and the number of graduates to 2,670.[1] These lower figures represent the normal decrease that was expected under the increased entrance requirements, and are not due to the war. As noted in Table 3 on page 542, the enrolments in the first three classes show an increase over previous years. Next year, therefore, unless the war makes an unexpected demand on the medical student body, the total enrolment in all medical schools and the total number of graduates should show an increase over the present year.

While in the totals of all colleges, students and graduates there has been a decrease, on the other hand, as shown in the accompanying tabulation, there has been a decided increase in the number of colleges that have enforced higher entrance requirements and in the numbers of students and graduates who possessed the higher entrance qualifications.

Instead of four (2.5 per cent.) medical schools which in 1904 required any college work for admission, now eighty-three (92.2 per cent.) are requiring one or two years of such work; instead of only 1,761 (6.2 per cent.) students enrolled in the higher standard colleges in 1904, during the year 12,999 (95.3 per cent.) students were enrolled in the higher standard colleges, and instead of only 369 (6.4 per cent.) graduates who were turned out by the higher standard colleges in 1904, at the end of the last session 2,412 (90.3 per cent.) graduated from those institutions. In addition to the improvement in preliminary qualifications, which represents only one of the improvements brought about in medical education, it should also be stated that greatly increased endowments have been secured, many schools having received hundreds of thousands of dollars, while a score or more have received gifts of millions; most of the medical schools have erected new buildings, have established better equipped laboratories, have obtained more abundant clinical facilities, and, still more important, have employed larger numbers of skilled full-time teachers and developed better methods of teaching in both the laboratory and the clinical portions of the school. Instead of the large proportion of lectures or lecture clinics that constituted so great a part of the former curriculum, now the student gets most of his clinical training at the bedside of the patient, in small group clinics or in having patients individually assigned to him.

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[1] Altogether 2,807 students successfully completed the courses of the senior year From 137, however, in the Universities of California and Minnesota and in Rush Medical College, the degrees have been withheld pending the completion of a hospital internship.

Since the proportion of physicians to population in the United States is still one to every 739 people, as compared with one to every 1,500 to 2,500 in the European countries, it is evident that the reduction in the output of physicians each year has not been serious. On the contrary, there has been a large increase in the number of those who are much better qualified, both by preliminary education and medical training, to care adequately for the sick, and to take a more active part in the prevention of disease and the promotion of public health.

NEW OBSERVATIONS ON VITAMINS

As a corollary to the investigation of deficiencies in the diet and their relation to the so-called deficiency diseases, students of nutrition are beginning to summarize those positive properties of foods which give them special value as stimulants of growth, as antineuritic or antiscorbutic substances or as promoters of well-being from the metabolic standpoint. These properties or advantageous physiologic attributes include the character of the protein, that is, its capacity for yielding all of the amino-acids requisite for the body's needs, the digestibility of the nutrients, the amount and more particularly the suitability of the inorganic components, and, most recently, the content of vitamins of different types.

Not long ago, Osborne and Mendel,[1] who have been engaged under the auspices of the Carnegie Institution of Washington in extensive studies of the nutritive factors in animal tissues, demonstrated that ordinary butcher's meat, beef skeletal muscle, furnishes protein entirely adequate for the needs of growing animals. This tissue, however, was found to contain a far smaller proportion of the water-soluble vitamin than occurs in the liver tissue of the pig, or such now familiar tested sources of this essential dietary constituent as yeast, corn germ, wheat embryo, or milk. In view of this it was surprising to find, in Osborne and Mendel's[2] latest researches, that heart muscle, in contrast with the skeletal variety just mentioned, furnishes considerable of the water-soluble vitamin so essential to nutritive welfare. Glandular tissues, such as the pancreas, kidney and liver, had been shown to be relatively rich in this vitamin. We are now assured that it is likewise present in the brain tissue.[2] Furthermore, all of these gland foods contain proteins suitable for the nutrition of growing animals. In this sense their protein quality is "complete" from the amino-acid standpoint.

It is not without related interest that such derivatives of the meat industry have some virtues at least that are not associated with the muscular tissue. Perhaps this will serve to give them a more dignified place in dietetics, in which they have at times received some unfavorable reputation as sources of purins and therefore as precursors of uric acid. The latter no longer holds the spell over medicine that it once had.

Osborne and Mendel[2] have pointed out that their various observations of the unlike value of different animal tissues as sources of the water-soluble vitamin closely parallel the findings of Cooper[3] with respect to the effectiveness of different tissues in postponing the development of polyneuritis in pigeons fed on a diet of polished rice. He found that the liver, cardiac muscle, and cerebrum of the ox were much more efficient in preventing the onset of this disease than was the ox voluntary muscle.

In 1914, Osborne and Mendel[4] showed that cod liver oil contains the fat-soluble vitamin comparable with that in milk fat or butter and egg yolk fat, and now associated with the promotion of growth. They have now reported it to be present in the liver oil of mammals, from which it was removed in the case of the pig by extraction with ether. This likewise adds a new property to the liver as a source of vitamins.

The apparent need of certain bacteria for substances of the vitamin type has been referred to in The Journal. Pacini and Russell[5] seem to have demonstrated that the typhoid bacillus, in growing, produces a vitamin that can be isolated and identified by proper biologic methods. It is not radically surprising that this should be so, when the richness of another microbiotic form—the yeast—in vitamin is recalled. One naturally inquires how this may effect the general metabolism and nutritive condition of typhoid patients.

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[1] Osborne, T. B., and Mendel, L. B.: Nutritive Factors in Animal Tissues, I, Jour. Biol. Chem., 1917, **32**, 309.

[2] Osborne, T. B., and Mendel, L. B.: Nutritive Factors in Animal Tissues, II, Jour. Biol. Chem., 1918, **34**, 17.

[3] Cooper, E. A.: Jour. Hyg., 1912, **12**, 436; 1914, **14**, 12.

[4] Osborne, T. B., and Mendel, L. B.: Jour. Biol. Chem., 1914, **17**, 401.

[5] Pacini, A. J. P., and Russell, Dorothy W.: The Presence of a Growth-Producing Substance in Cultures of Typhoid Bacilli, Jour. Biol. Chem., 1918, **34**, 43.

THE SELECTIVE SERVICE APPLIED TO PHYSICIANS

The proposed Selective Service Law, if the age limit is raised to 45, will affect 75,000 physicians. The bill as introduced by Senator Chamberlain and Mr. Dent, August 5, makes no mention of physicians as a class; there is nothing to indicate that a physician will be treated differently from any other man. Such speculation as has been made on the subject, and it would fill reams of paper, has concerned itself chiefly with the views advanced by Secretary Baker, Provost Marshal-General Crowder and Chief of Staff Peyton March. As stated by Secretary Baker, it is desired to prevent "the disruption of the industry of the country and the impairment of the efficiency of the various governmental agencies which would feel the indiscriminate enlistment of men up to the age of 45."

It has been suggested that the new law will provide for the utilization of the man power of the nation to the best advantage, although there is nothing in the bill, as we read it, that provides for any different method of applying the selective service principles than that which has heretofore governed the disposition of those under 31 years of age. In any event, as the matter affects physicians, certain points are clear: It is quite probable that physicians on local and district boards will be exempted during the continuance of such service; in fact, the Provost Marshal-General has so intimated. It is also obvious that physicians under 45 years of age, physically fit, without dependents, will be subject to conscription, as is now the case. It is likely that physicians with dependents, who have independent means, and whose families are therefore not dependent on the physicians' professional income for support, will be subject to conscription.

It is not so obvious what will be done with the physician under 45 years of age, physically fit, whose social conditions are such as, for an ordinary man, would warrant claim for exemption on account of dependency. It has been repeatedly suggested that physicians could not advance a plea for exemption on the grounds of dependency since they are eligible for a commission and the salary of a commissioned officer is sufficient to support a family. As a matter of fact, it is reported that local boards in some communities have refused to exempt physicians on the ground of dependency for this very reason. On the other hand, Col. J. S. Easby-Smith[1] of the Provost Marshal-General's Office, at the meeting on the selective service regulations at the last annual session of the American Medical Association, said:

> You are considering his case not from the standpoint of a man that is to be commissioned in the Medical Reserve Corps. You are considering him as a man, a drafted man who will get $30 a month and that the government will allow $15 and add to it $15 for a wife. You cannot consider the probability that a medical man who is drafted is going to get a commission. I think you would have to treat him as you would any other registrant from that standpoint.

The proposed increase of the draft ages will perhaps not solve the medical problems of the civilian community and of the Army as easily as they have apparently been solved in England by the application of selective service. In that country, as was pointed out last week, all physicians are called up by the Central Medical War Committee and given the option of taking such civilian medical service as the Central Medical War Committee may assign to them, or of being turned over to the military authorities for commission. In that way the civilian needs of the community, as well as those of the Army, are provided for. While Great Britain is small in area as compared with the United States, at the same time there seems to be no serious obstacle to putting into effect practically the same general scheme here. Of course, it must be remembered that owing to the lax methods of education and licensure in the past, there are some physicians who, although licensed to practice in the state in which they reside, are not able to meet the professional requirements of the Surgeon-General's Office for a commission in the Medical Department of the Army. It is quite probable, however, that there are comparatively few of these within the proposed draft age. It would seem possible, therefore, to formulate regulations which would receive the approval of the Surgeon-General of the Army and of the Provost Marshal-General which would practically place all physicians of draft age under the jurisdiction of the Surgeon-General of the Army. It is the Medical Department of the Army that is primarily interested. The Navy has all the men it needs, and it is the policy of the Bureau of Medicine and Surgery of the Navy not to commission more men than can be put into active service. Placing all the physicians of the country, under 45, at the disposal of the Surgeon-General of the Army would make easy the solution of the problem of securing the required number of medical officers without seriously interfering with the needs of the civilian population, institutions, colleges and hospitals.

IN DEFENSE OF VENEREAL NOSTRUMS

The accusation that the medical profession generally and the American Medical Association in particular is opposed to the sale of all medicaments of the "home-remedy" type, THE JOURNAL has repeatedly denied. It has stated that it believes that under present economic conditions there is a place for remedies of this sort and has suggested certain fundamental principles which should govern the sale of products of this kind. One of these principles is that no preparation should be sold for the treatment of those diseases that are so dangerous to the individual or to the community that they should not be self-treated.

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[1] Physical Examinations Under the Selective Service, THE JOURNAL A. M. A., July 13, 1918, p. 118.

The reasonableness of this requirement is so obvious that one would imagine it would be accepted without question.

The raising of the new army has brought to public attention certain facts that, under normal conditions, might be less patent. Those dealing with the problem of the control of venereal diseases are some of them. In the attempt to prevent the spread of venereal disease and to minimize the danger to health of those suffering from it, it has long been urged that the self-treatment of gonorrhea and syphilis is unjustified, and, *ergo,* that the sale of products for such self-treatment is unwarranted. The majority of decent druggists agree wholly with this stand. Not so that spokesman of the "patent medicine" interests, the *National Druggist.* In its July issue this publication thrashes itself into a verbal fury nearly four pages long against the suggestion which, it claims, emanates from a "Prussianized clique of medical autocrats." Says this representative of the nostrum interests:

> But the latest and, perhaps, the most insidious, application of their knowledge of popular psychology, of their policy of opportunism, is seen in the effort which is now being made to prohibit the sale by druggists of medicines for the treatment of the so-called "private" diseases. There is, of course, not the slightest valid reason why a person, if he so elects, should be deprived of the right to buy and use, or why the druggist should be forbidden to sell, a remedy for one of these diseases than for any other disease or class of diseases.

There is, of course, the best and most obvious of reasons why the public should not attempt to self-treat contagious diseases that are a menace both to the individual and to the community. But any law looking to that result would put the exploiters of the venereal nostrums out of business! The *National Druggist,* after denouncing the American Medical Association and the medical profession, then goes on to explain what the druggists may do should laws be enacted by the various legislatures and be sustained by the courts. Says this drug journal:

> Suppose, which is inconceivable and we believe impossible, the courts should sustain these laws? Even then they could not extend to and embrace any stock of such preparations that the druggist may have on hand at the time the law is enacted. In short, the Legislature cannot make a retroactive law of the kind, so as to destroy property in existence at the time of its passage. This principle is so well established that the druggists may confidently accept and act upon it. There would be, therefore, nothing to prevent his going right ahead and disposing of such of these remedies as he has in stock.

And, apparently, the *National Druggist* sees a way whereby, even when such laws are enacted, they may be evaded by the druggist. Thus:

> But we do not see how such laws can very materially interfere with the sale of remedies for the specified diseases that may be purchased *after* their passage (even granting, for the sake of argument, that they constitute a valid exercise of the police power) provided the druggist sticks to his last, so to speak—by which we mean, if he does not prescribe, recommend or actually sell the remedies *knowingly* for the specified diseases. Take any of these remedies. There is scarcely one of them that is not indicated and prescribed and designed and used for the treatment of various other conditions than those for which it is chiefly intended; and, so, unless the purchaser explicitly states to the druggist that he wants them for, let us say, some venereal disease, there is absolutely nothing to prevent the druggist from supplying them.
>
> What though the druggist may know that the medicine is customarily used for one of the proscribed diseases—he has no right to *assume* that every purchaser wants it for such a purpose. Indeed, the person calling for it may be only a messenger or an errand boy for some one else. [The italics appear in the original.—Ed.]

We wonder how the decent druggists of the country feel after reading such suggestions as those just given. From the large amount of advertising carried by the *National Druggist*—which includes, by the way, in the current issue "Big G," "Knox-It," "C & C Remedy for Men," "Pabst's Okay Specific," etc.—one might get the impression that the publication has more influence in the drug world than seems possible from the editorial pabulum it serves its readers. One thing is certain, if the *National Druggist* does not represent the attitude of the druggists of the country, and we feel sure that it does not, the sooner the druggists repudiate it the better it will be for the honor of that profession.

Current Comment

MEDICAL EDUCATION AND THE WAR

When the selective service law was enacted in 1917, medical students were not exempted and there was much concern lest many, if not all, of our medical schools would be forced to close, and that as a result there would be a serious dearth of physicians. Statistics collected by the Council on Medical Education indicated that the first three calls under the draft law would take from 60 to 75 per cent. of all medical students, and series of editorial comments on the subject were published in The Journal.[1] A solution to this problem was found in the National Defense Act of 1915 providing for the Medical Officers' Reserve Corps and also for an Enlisted Medical Reserve Corps in which medical students could be enrolled and retained in the medical schools until they had graduated and completed their hospital intern year. These students are subject to assignment to active duty should an emergency require it. Later it was revealed that unless means of exempting premedical students could be found, the supply of medical students would be curtailed. The proposed Students' Army Training Corps, to be established in colleges and universities, now appears to provide the means of retaining premedical students at their work. Although they will be enlisted men and subject to call in emergency, the policy of the government is to have them stay in college until they complete their training as medical officers. If they do not enter medical schools before they are

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[1] Medical Students and Conscription, Current Comment, The Journal A. M. A., Aug. 11, 1917, p. 475; Aug. 18, 1917, p. 570; Aug. 25, 1917, pp. 649, 650; Sept. 1, 1917, p. 735, and Sept. 8, 1917, p. 82

21 years of age—and become enrolled in the Enlisted Reserve Corps—they must register under the selective service and respond to their call. When called, it is planned, their record will be examined and if satisfactory the students will be returned to college so as to complete their premedical and medical work. A third and more vital problem is that relating to the threatened dearth of medical teachers due to the loss of many by enlistment. A solution to this problem appears to have been found in the rule providing for the exemption of those engaged in "essential industries." To meet the situation, each college has been requested by the Surgeon-General to furnish a list of its essential teachers who, it is planned, will not be called to active duty even though they shall enlist, but shall be left at their teaching duties on the ground that they are engaged in an "essential industry."

UNIFICATION OF THE ARMY

A general order was issued under date of August 7 to discontinue the use of distinctive appellations for the various branches of the service, such as Regular Army, Reserve Corps, National Army, National Guard, etc., and to use exclusively the single term, U. S. Army. The insignia now prescribed for the Regular Army is hereafter to be worn by all members of the United States Army. In the same way all commissions in various branches shall be regarded as commissions in the United States Army, divided into permanent, provisional or temporary, as fixed by the conditions of their issue. The number of commissions in each grade and in each staff corps are to be kept within the limits fixed by law, but officers are to be assigned without reference to the term of their commissions, solely in the interest of the service. Promotion is to be by selection, except that permanent promotions in the regular Army will continue to be made as prescribed by law. This affects the Medical Department of the Army only to the extent that all medical officers will wear as insignia the U. S. and the caduceus, discontinuing the use of the U. S. R. In the same way, correspondence, orders and articles referring to medical officers will hereafter refer to them only as officers of the Medical Department, U. S. Army.

CANNING WITHOUT SUGAR

We have been so accustomed to using large quantites of sugar in the home canning of fruits that the present sugar shortage may lead many to think that sugar is necessary for such preservation. As a matter of fact, commercial canners have for a long time often used only very thin syrups, and in some cases no sugar at all, in the preservation of fruit. The whole problem is simply one of adequate sterilization. While no thoroughly satisfactory method of home canning has yet been devised, particularly for fruit already distributed in cans or jars, wide experience has taught the housewife practical methods of solving her problem. It is to be hoped that some one will be able to develop a satisfactory home pressure cooker so that in the home canning there may be obtained the more complete sterilization that is now possible in commercial establishments. Fruits that are preserved without sugar may have the sugar added at any time. If, before consumption, the fruit is heated up at the same time that the sugar is added, an additional factor of safety will be obtained. Such toxins as that causing botulism are not thermostable. The recent work on botulism indicating the heat resisting power of the spores of the *Bacillus botulinus* demonstrates the wisdom of boiling all canned vegetables and fruits just before they are consumed, particularly if there is any suggestion of fermentation, or if they have a sour butyric acid smell. Considerable work is being done by the Department of Agriculture and in the agricultural colleges and some university laboratories on improvements in the methods of canning, and it is to be hoped that standardized methods can soon be obtained that will have general application in our homes. Too much emphasis cannot be placed on using canning processes based on the well known facts of bacteriology. A slight error in a purely empiric method may lead to a large percentage of spoiling with consequent waste of human food and labor. During the war, particularly, we are anxious to save both.

WELL DONE, MINNESOTA

For many years the organized medical profession of Minnesota was satisfied to have the *Journal-Lancet* for its official organ. As time went by, however, the physicians of Minnesota, evidently believing that that great state should be in the vanguard rather than the rear guard of medical journalism, decided to look into the question of publishing its own official organ so that it would have direct control over both editorial and advertising pages. The advertising standard of the *Journal-Lancet* was, and is today, characteristic of nineteenth rather than twentieth century American medical journalism in that it accepts for its advertising pages such "patent medicines" as Pluto Water, Angier's Emulsion, Sal Hepatica, Pepto-Mangan, Fellows' Syrup of Hypophosphites, Listerine, etc., and such pseudoscientific atrocities as Ergoapiol (Smith), Henry's Tri-Iodides, Campho-Phenique, Antiphlogistine, Cystogen, etc. At the annual meeting of the Minnesota State Medical Association in 1916, the House of Delegates of that body appointed a committee to consider and report on the advisability of the association's publishing its own journal. The committee consisted of five members; four of these members brought in a report unfavorable to making the change that would put Minnesota in control of its own journal. The fifth member looked into the matter with a good deal of thoroughness, got together a large amount of data showing not only the advantages, ethical and professional, that would accrue to the Minnesota State Medical Association in having its own publication, but also pointing out the highly objectionable advertising carried by the *Journal-Lancet,* which at that time was the journal of the association, and this member of the committee favored the change. It speaks well for the good sense and high standard of the Minnesota physicians when it is stated that the House of Delegates adopted the minority report and decided that Minnesota should have its own journal commencing with January, 1918. *Minnesota Medicine* was the result, and up to date eight numbers have been issued. The journal is a credit, not only to Minnesota, but to the medical journalism of the country. Its advertising pages are clean (it takes advertisements of no proprietary remedies that have not been passed on by the Council on Pharmacy and Chemistry and accepted for inclusion in New and Nonofficial Remedies), the standard of its reading pages is high and, being independent of nostrum domination, it gives its readers the facts regarding the nostrum evil as it affects both the medical profession and the public. In a word, Minnesota now has a medical journal of which any state association might be proud.

ARSPHENAMIN ELIMINATION

Danysz[1] has presented what appears to be a plausible explanation of the manner in which arsphenamin is eliminated after its intravenous injection, and along with this an explanation of the causes of serious or fatal reactions. If the simple explanation given is correct that accidents can be largely eliminated by the use of the proper amount of alkali in making up the solutions, and that most of the different types of reaction are explained on the basis of the same mechanism, the observations of Danysz will prove of inestimable value. While we can hardly hope that reactions can be prevented to the extent indicated by this author, nevertheless his suggestions deserve careful consideration, and it is hoped that experimental data will be forthcoming that will disprove or prove the conclusions of Danysz on this important subject.

COEDUCATION IN MEDICINE

The world war has given added impetus to the tendency on the part of medical colleges to throw open their doors to women students. During the last three or four years this action has been taken by several of the largest medical schools in the United States and Canada: in 1914 by the Medical School of the University of Pennsylvania; in 1915 by the Tulane University of Louisiana; in 1916 by the Columbia University College of Physicians and Surgeons; in 1917 by the University and Bellevue Hospital Medical College, by the University of Maryland and the Medical College of Virginia, and in the present year by Harvard University Medical School and by the Medical Faculty of McGill University. The idea of granting equal opportunities for the two sexes in medical schools, however, had already made rapid advancement before the world war. More than forty years ago the University of Michigan made its courses in medicine coeducational, and practically all state universities have followed the example. From the time of its organization in 1893, the Medical Department of Johns Hopkins University has admitted women. In New York City the Women's Medical College of the New York Infirmary closed its doors only after Cornell University in 1898 had established its medical school and admitted women students. In 1902 Rush Medical College, which had formed a close affiliation with the University of Chicago, became coeducational. At the present time, therefore, of the ninety colleges existing in the United States, sixty admit both sexes. The general adoption of coeducation by medical schools is a fitting recognition of the splendid work toward winning the war which is being done by women, both in medical and other lines.

CHIROPRACTORS—QUACKERY BY WHOLESALE

The public is rapidly becoming rid of quacks from the medical profession through merciless exposure by the medical and lay press and through prosecution in many states under the medical practice laws. A more dangerous type of quackery, however, is represented by the various pseudomedical cults—more dangerous because they are built on fallacies, misrepresentations and extravagant claims in regard to the cure of diseases. Most flagrant is "chiropractic." Followers of this cult are sending circulars through the mails and publishing advertisements in newspapers—sometimes utilizing whole pages—claiming that by a simple manipulation of a portion of the spine they can cure all diseases from toothache and felons to apoplexy, locomotor ataxia, nephritis and epilepsy. The menace of their pretensions is shown in their claim to cure infantile paralysis—a serious disease even in the hands of the most skilled and thoroughly trained physician. The utter absurdity of their claims is indicated by the fact that they are not trained in the simplest rudiments of medical knowledge, and avowedly turn their backs on all modern scientific methods. A prominent representative of chiropractic, as revealed in the investigation by Mr. Justice Hodgins, whose report on Medical Education in Ontario was recently commented on,[1] stated that "chiropractors have no earthly use for diagnosis"; that bacteriology was of "no value to the chiropractor"; that it was "not worth the while to spend time, energy and money to microscopically examine the infinitesimal mites"; that chiropractors "abhor the very name of drugs and repudiate their use," and that chemistry "has nothing in common with chiropractic and cannot be made an adjunct to it." B. J. Palmer, the "founder of chiropractic," also stated in the same investigation that he did not believe in bacteria and that "bacteriology was the greatest of all gigantic farces ever invented for ignorance and incompetency," and as to analysis of blood and urine, he considered it of no value. This is the man who terms *his* college "the fountain head of chiropractic"! That such bigoted and egotistic incompetence should be permitted to practice the healing art and to prey on a credulous public is as astounding as it is contrary to common sense. It is deplorable that hordes of these ignorant practitioners are being turned out each year from institutions representing this and other cults—institutions which would not exist were it not for the lack of ample safeguards over the chartering of educational institutions. If these practitioners were physicians they would be subject to early and severe prosecution under the medical practice laws and to severe arraignment by the medical press as violators of all the rules of medical ethics and medical decency. But in some states they have secured exemption from medical practice laws under another fallacious claim, that they are "not practicing medicine." It is high time that the sick should be protected from such dangerous incompetents and that those who prey on the afflicted, under the pretense of having discovered new methods of treatment, should be prosecuted for obtaining money under false pretenses.

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[1] Danysz, J.: Ann. d. l'Inst. Pasteur, 1917, **31**, 114; abstr., The Journal A. M. A., this issue, p. 596.

[1] Medical Education in Ontario, editorial, The Journal A. M. A., July 6, 1918, p. 42.

Medical Mobilization and the War

Physicians May Still Enroll in the Medical Reserve Corps

The newspapers of August 14 carry an announcement that on August 13 the Secretary of War issued an order "prohibiting the granting of commissions in the Army to men in civil life between the proposed draft ages of 18 to 45. Students in officers' training camps will be permitted to complete their courses and civilians not in training camps whose applications were approved before the order was issued will be given commissions." Presumably this does not apply to the commissioning of physicians in the Medical Reserve Corps and the Medical Reserve Force of the Navy any more than did the order under date of August 8 which suspended further volunteering and the receipt of candidates for officers' training camps, which, it has been announced, did not apply to commissioning of physicians.

Personnel of the Medical Department

For the week ending Aug. 9, 1918, the personnel of the Medical Department of the Army included:

Medical Corps: 933, including 1 major-general, 64 colonels, 112 lieutenant-colonels, 296 majors and 460 lieutenants.

Medical Reserve Corps: 23,063, including 1 colonel, 4 lieutenant-colonels, 1,531 majors, 6,894 captains and 14,633 lieutenants. On active duty: 22,706, including 1 colonel, 2 lieutenant-colonels, 1,516 majors, 6,737 captains and 14,450 lieutenants.

Medical Corps, National Guard: 1,195, including 22 lieutenant-colonels, 263 majors, 257 captains and 653 lieutenants.

Medical Corps, National Army: 362, including 6 brigadier-generals, 87 colonels, 259 lieutenant-colonels, 9 majors and 1 captain.

The Discharges to date are:

Causes—	Number		
	M.C.N.A.	M.R.C.	M.C.N.G.
Physical disability	0	760	56
Inaptitude	0	285	22
Other branches of service	3	645	75
Resignations	0	200	34
Domestic troubles	0	61	1
Needed by community	1	49	0
Deaths	1	102	7
Dismissals	0	17	4
Duty completed	0	3	0
No reason given	0	15	1
	5	2,137	200

War Department Does Not Authorize Raising of Hospital Funds by Individuals

The War Department announces that it does not authorize the collection of money by individuals for the erection of military hospitals, since it has sufficient funds for the building of all hospitals needed to care for sick and wounded soldiers. Congress has appropriated all money required for this purpose up to the present time, and it is reasonable to assume that it will continue to do so.

Proportion of Various Types of Disability

In a recent issue the *Vocational Summary*, published by the Federal Board for Vocational Education, quotes the following interesting statistics of the character of the wounds and diseases of disabled men pensioned by the British government. These were given in the House of Commons on May 28, by Mr. Hodge, minister of pensions. Up to the end of April, 1918, Mr. Hodge said the number of disabled men who had received pensions was 341,025. He had worked out the percentages of different forms of disablement, and these were as follows:

	Per Cent.
Eyesight cases	2.8
Wounds and injuries to legs necessitating amputation	2.6
Wounds and injuries to arms necessitating amputation	1.4
Wounds, etc., to legs not necessitating amputation	11.9
Wounds, etc., to arms not necessitating amputation	8.45
Wounds, etc., to hands not necessitating amputation	4.45
Wounds, etc., to head	4.0
Hernia	.8
Miscellaneous wounds and injuries	5.55
Chest complaints and tuberculosis	11.60
Rheumatism	6.5
Heart disease	10.3
Epilepsy	1.0
Nervous diseases, shell shock, etc.	6.0
Insanity	.75
Deafness	2.0
Frostbite, including cases of amputation of feet or legs	.9
Miscellaneous diseases	18.36

Mr. Hodge further said that in the employment of disabled soldiers an armless man would probably in future be their greatest difficulty. Out of seventy messengers in the ministry of pensions, fifty-five were one-armed men.

Military Mobilization of the Medical Profession

The War Committee of the Nebraska State Medical Association has developed and is putting into practice a plan which originated from suggestions made at the conference of state secretaries held at the headquarters of the Association, April 30, 1918. This plan was formulated after some consultation with the Association office and is, we believe, feasible and practicable. Moreover, it is a plan that can readily be adapted to the conditions which prevail in each of the states. The *Nebraska State Medical Journal* for July, 1918, contains this announcement of the Nebraska State Medical Asociation.

MEDICAL RESERVE PLAN

In consequence of a decided misapprehension which seems to be prevalent among the members of the profession in the state relative to the councilor-district plan of designating medical men for the Medical Reserve Corps of the Army, the following statement is published. The plan referred to is simply this:

The councilor of each district, and one member of each county society in the district, will constitute a board for the selection of the members of the profession in such district, who shall report for examination for the Medical Reserve Corps. The number to be selected will be in accordance with the number required to fill the quota of the district. Those selected in this way will be designated for examination and their names will be sent by the councilor of the district to Col. J. M. Banister, U. S. Army, chairman of the State War Board. The necessary instructions will be given them by Colonel Banister, blanks sent to them, and a date appointed for the examination of each. No one in the district will be examined except those specifically designated by the board having jurisdiction in each case.

This provision will have no bearing on members of the profession who may desire to volunteer and enter the service directly. Such physicians can always have an opportunity to enter the service as heretofore.

Col. J. M. Banister, Chairman; Dr. John E. Summers, Dr. Ewing Brown, Dr. Charles L. Mullins, Dr. Joseph M. Aikin, War Committee of the Nebraska State Medical Association.

The details of the proposition are that:

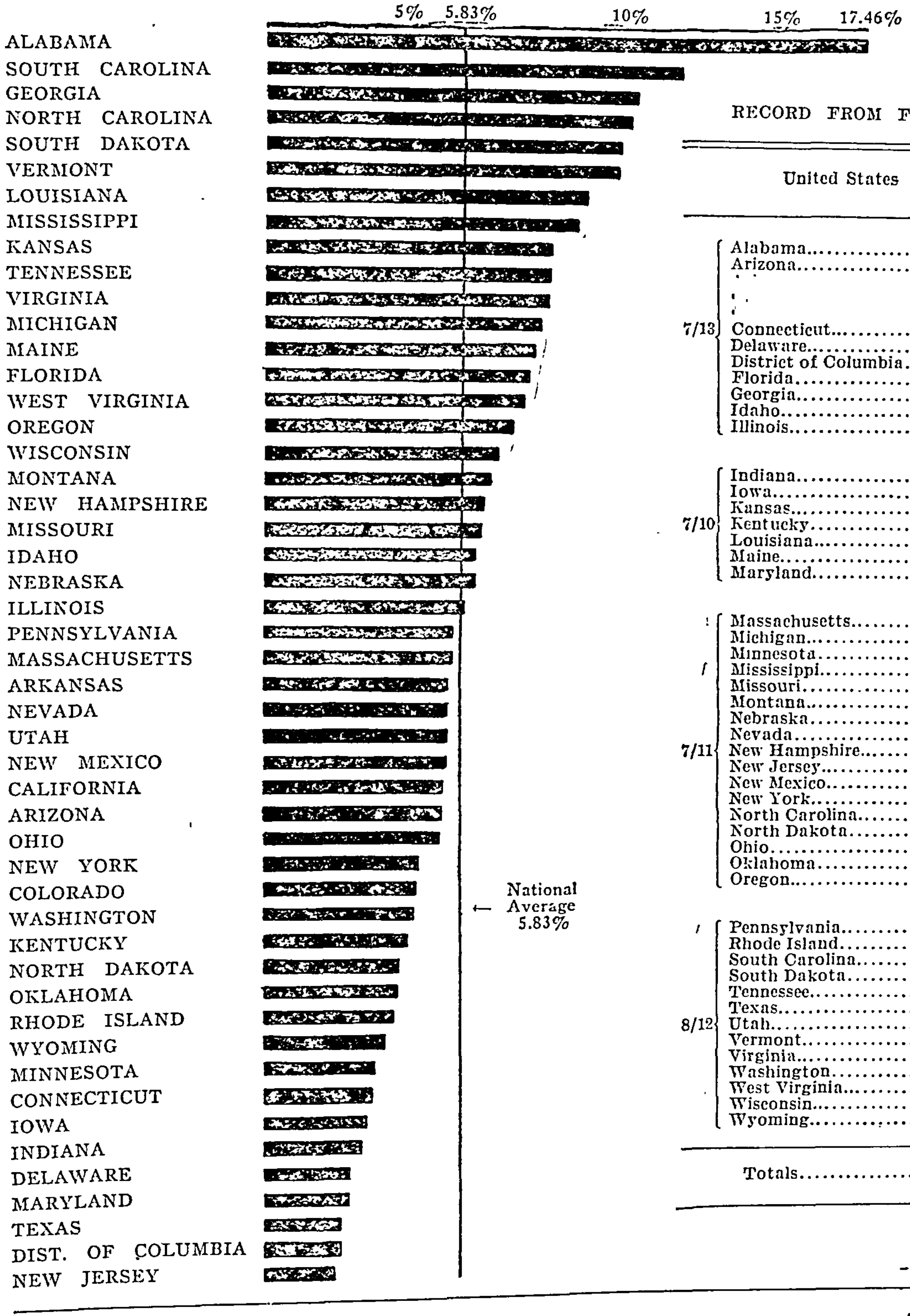
1. A war committee is to be constituted in each councilor district. This committee is made up of a representative elected by the physicians of each of the counties included in the councilor district. The councilor of the district is the chairman of the committee.
2. All physicians under 55 years of age agree each with the other that each of them files out an application for a commission in the Medical Reserve Corps of the Army or the Medical Reserve forces of the Navy, and pledge themselves to accept the commission, if it is awarded.
3. The war committee of the council or district collects the applications and indicates the order in which the applicants are to be called.
4. The war committee of the state association files these applications for the following disposition:

(*a*) If the quota of physicians from the district, needed for military service, is not supplied, the applicants shall be called in sufficient numbers and in order to present themselves for examination.

(*b*) If the quota is provided, the applications are held until another increment is called for by the Surgeon-General, when the number of applicants required to meet the new demand shall be called for examination.

PERCENTAGE OF REGISTRANTS INDUCTED AND REJECTED

The following chart and table prepared by the Office of the Provost Marshal-General indicate the relative number of registrants inducted and rejected in the various states for the period from Feb. 10 to July 10, 1918:



RECORD FROM FEB. 10, 1918, TO DATE INDICATED

	United States	Inducted	Accepted	Rejected	Per Cent. Rejected
7/13	Alabama	11,759	9,705	2,054	17.46
	Arizona	3,257	3,088	169	5.18
		18,473	17,470	1,003	5.42
		14.851	14,074	777	5.23
		7,380	7,056	324	4.39
	Connecticut	11,904	11,534	370	3.10
	Delaware	1,363	1,329	34	2.49
	District of Columbia	2,679	2,622	57	2.12
	Florida	9,225	8,517	708	7.67
	Georgia	21,765	19,403	2,362	10.85
	Idaho	3,640	3,413	227	6.23
	Illinois	80,360	75,653	4,707	5.86
7/10	Indiana	24,135	23,440	695	2.87
	Iowa	19,908	19,309	599	3.00
	Kansas	11,980	10,978	1,002	8.36
	Kentucky	19,634	18,828	806	4.10
	Louisiana	15,650	14,101	1,549	9.89
	Maine	4,285	3,945	340	7.93
	Maryland	9,728	9,488	240	2.46
7/11	Massachusetts	20,837	19,690	1,147	5.50
	Michigan	37,682	34,654	3,028	8.03
	Minnesota	26,219	25,387	832	3.17
	Mississippi	14,415	13,099	1,316	9.12
	Missouri	22,865	21,407	1,458	6.37
	Montana	7,138	6,665	473	6.62
	Nebraska	8,462	7,934	528	6.23
	Nevada	483	457	26	5.38
	New Hampshire	2,652	2,481	171	6.44
	New Jersey	29,760	29,184	576	1.93
	New Mexico	3,262	3,090	172	5.27
	New York	89,732	85,663	4,069	4.53
	North Carolina	19,228	17,174	2,054	10.68
	North Dakota	7,250	6,967	283	3.90
	Ohio	51,614	48,978	2,636	5.10
	Oklahoma	16,903	16,256	647	3.82
	Oregon	5,754	5,334	420	7.29
8/12	Pennsylvania	65,640	62,018	3,622	5.52
	Rhode Island	4,363	4,198	165	3.78
	South Carolina	7,613	6,692	921	12.09
	South Dakota	5,144	4,611	533	10.36
	Tennessee	17,297	15,851	1,446	8.35
	Texas	32,811	32,087	724	2.20
	Utah	3,155	2,987	168	5.32
	Vermont	2,490	2,232	258	10.36
	Virginia	15,118	13,887	1,231	8.14
	Washington	7,845	7,507	338	4.30
	West Virginia	15,256	14,106	1,150	7.53
	Wisconsin	23,148	21,555	1,593	6.88
	Wyoming	3,145	3,034	111	3.52
	Totals	859,257	809,138	50,119	5.83

Wounded

Lieut. John P. Kerrigan, M. R. C., U. S. Army, Ludlow, Vt., was reported, August 5, to have been severely wounded.——Capt. Henry Edgar Bunch, Jr., M. R. C., U. S. Army, Kennecott, Alaska, was reported, July 27, to have been wounded while on duty overseas.——Capt. William Joseph Condon, M. R. C., U. S. Army, New Brunswick, N. J., was reported on July 30 to have been severely wounded.——Major Howard W. Beal, M. R. C., U. S. Army, Worcester, Mass., was reported on August 1 to have been severely wounded.——Lieut William A. Toland, M. R. C., U. S. Army, Pottstown, Pa., is reported to have been slightly wounded by the premature explosion of a shell.

Awards for Merit

Dr. Daisy M. Orleman Robinson, New York City, has been awarded the medal of honor by the Minister of War of France in recognition of her service for the French wounded as assistant to Dr. Paul Gaston, Montpellier.——Lieut. Charles Wesley Myers, M. R. C., U. S. Army, Benbush, W. Va., is reported to have received the Distinguished Service Cross.——Dr. Daniel E. Berney, Scranton, has been awarded the Military Cross by the British government for gallantry on the battlefield.——Lieut. William H. Howell, M. R. C., U. S. Army, Chicago, attached to the Royal Army Medical Corps, was mentioned in orders, July 25, on account of gallantry and initiative.

COMMISSIONS ACCEPTED, MEDICAL RESERVE CORPS, U. S. ARMY

Previous lists published in The Journal, June 1, 22 and 29, July 13, 20 and 27, August 3 and 10.

ALABAMA

Courtland—Ussery, J. A.
Ensley—Sparks, D. H.
Montgomery—McConnico, F. H.

ARKANSAS

Crossett—Mathews, W.
Matthews, W. M.
Ft. Smith—Dorente, F. R.
Little Rock—Norwood, F. A.

CALIFORNIA

Downey—Haygood, A. G.
Los Angeles—Byron, R. L.
Ross, M. H.
Oakland—Clark, J. E.
Drucks, E. S.
Smith, A. M.
Pomona—Smith, R. L.
San Francisco—Calvi, P. J.
Santa Monica—Reed, E. N.
Stockton—Priestly, W. F.
Taft—Jones, A. A.

COLORADO

Cripple Creek—Brinton, W. T.
Greeley—Woodcock, B.

CONNECTICUT

Bridgeport—Foley, M. J.

DISTRICT OF COLUMBIA

Washington—Eichenlaub, F. J.

FLORIDA

Jacksonville—Holden, G. R.

GEORGIA

Athens—Stewart, J. S., Jr.
Ballicoch—Reed, C.
Bronwood—Bowman, R. E.
Canton—Coker, N. J.
Chipley—Avery, R. M.
Columbus—Baker, E. L.
Griffith, R. P.
Douglas—Clark, T. H.
Touchten, G. L.
Kingston—Ellis, C. L.
Macon—Daniel, O.
Diehl, J. E.
Marshallville—Frederick, D. B.
Rome—Garrard, J. L.
Simmons, R. O.
Savannah—Waring, A. J.
Williams, L. W.

IDAHO

Orofinos—Fairly, J. M.

ILLINOIS

Auburn—White, J. V.
Buffalo—Lutyons, G. B.
Canton—Scholes, P. S.
Charleston—Greer, C. E.
Chicago—Davis, J. F.
Furno, P. H.
Goldstine, M. T.
Holinger, O.
Hurwitz, E.
Krohn, W. O.
Loewenberg, L. A.
McMullen, C. J.
Meyer, J. T.
Miller, H. C.
Monaco, D. F.
Norton, F. J.
Scheier, A. M.
Springwater, S. A.
Washburn, J. M.
Cicero—Maha, F. J.
Fossland—Colwell, J. B.
Harvard—Eaton, H. D.
McLeansboro—Johnson, J. A.
Moline—Beam, H. A.
Oak Park—Sylvester, F. M.
Peoria—Ernst, J. R.
Rockton—Maurican, V. B.
Springfield—Bierly, J. R.
Paton, C. L.
Trapp, A. R.
Zeigler—Moore, J. B.

INDIANA

Bluffton—Redding, J. L.
Evansville—Barnes, W. E.
Fairmont—Aldrich, H.
Fishers—Black, V. G.
Fortville—Hervey, S. W.
Gary—King, E. P.
Hebron—Kleinman, F.
Indianapolis—Brauchla, H. C.
Caymack, J. W.
Devaney, M. O.
Indianapolis—Miliken, R. A.
Stafford, L. H.
Jeffersonville—Funk, A.
Threlkeld, G. W.
La Porte—Thompson, H. J.
Petersburg—Clark, S. R.
Richmond—Fouts, J. M.
Terre Haute—Hewitt, J. H.
Yung, J. R.
West Point—Roweland, C. L.

IOWA

Dubuque—Mehlhop, C. W.
Mason City—Smith, A. D.
Nevada—Houston, B.
Newton—Wood, R. W.
Reinbeck—Bartruff, C. H.
Waterloo—Sage, F. C.

KANSAS

Atchison—McKeehan, L. R., Sr.
Emporia—Corbett, O. J.
Wichita—Cheney, J. W.
Davidson, H. T.
Ebright, E. D.

KENTUCKY

Bradford—Comer, B. N.
Calvert City—Edleman, O. A.
Kirbyton—Pease, T. A.
Louisville—Brzozowski, G. S.
Liggett, H. T.
Ramey, C.
Water Valley—Bard, C. B.

MAINE

Bangor—Taylor, C. J.

MARYLAND

Baltimore—Baylor, J. W.
Fenby, J. S.
Johnson, H. H.
Nachlas, I. W.
Hagerstown—Gróve, G. H.
Rising Sun—Dodson, R. C.
Westminster—Sullivan, E. M.

MASSACHUSETTS

Boston—Ceconi, J. A.
Felch, G. A.
Sturgis, C. C.
Wright, W. L.
Brockton—Cloudman, H. R.
Mara, J. L.
Fitchburg—Grieumard, G. A.
Holyoke—St. George, F. M.
Lawrence—Murphy, T. W.
Lynn—Courtemanche, J. A.
Marblehead—Eveleth, S. C.
Melrose—Sims, F. R.

MICHIGAN

Brown City—Waltz, J.
Detroit—Ashley, L. B.
Carey, C.
Droock, V.
Hathaway, J. D. H.
Merrill, W. O.
Simons, W. N.
Young, R. K.
Grand Lodge—Schilz, E. A.
Lansing—Murphy, C. H.
Rulison, J. G.
Muskegon—Hannum, F. W.
Orion—Hathaway, C. L.
Port Huron—Patterson, D. W.

MINNESOTA

Bricelyn—Gussixson, A.
Duluth—Linneman, N. L.
Glenville—Freeman, J. P.
Hallock—Shaleen, A. W.
Mantorville—Adams, R. T.
Minneapolis—Dahl, J. A.
Schmidt, K. H.
Schmitt, S. G.
Ulrich, H. L.
St. Paul—Hilger, A. W.

MISSISSIPPI

Hattiesburg—Ross, T. E., Jr.
Indianola—Bernard, B. C.
Louin—Montgomery, G. W.
Richton—Graves, W. R.
Tonnolen—Ruff, C.

MISSOURI

Berger—Wagner, W. H.
Creighton—Levens, W. B.
Fair Grove—Edmondson, M. T.
Gower—Reynolds, S. D.
Helena—Carpenter, E. H.
Holcomb—Drace, C. C.
Joplin—Chapman, T. E.
Kansas City—McCartney, O. P.
Middleton, J.
Lowry City—Peeler, E. C.
Monett—West, W. M.
Newark—Pierce, D.
Otterville—Fogle, R. L.
Sedalia—Walker, E. R.
Springfield—Horst, O. C.
St. Louis—Farrell, J. A.
Gross, J. H.
Hoberecht, C. A.
McIntire, J. C.
Salisbury, W. J.
Senseney, E. T.
Westlake, S. B.
Urich—McDonald, J. G.

NEBRASKA

Beatrice—Buckley, F. W.
Beldon—Fletcher, F. W.
Fremont—Reeder, G. S.

NEW HAMPSHIRE

Lancaster—Carpenter, H. B.
Manchester—Wilkins, G. C.
Portsmouth—Johnston, C. E.

NEW JERSEY

Millville—Sheppard, F. R.
Newark—Blumberg, L. S.
Ponollo, J. N.
Paterson—Bothyl, B. W.
Golding, H. N.
Red Bank—Magee, D. M. P.
Trenton—Treiber, B. A.

NEW MEXICO

Albuquerque—Sheridan, W. M.
Roswell—Pressley, T. E.
Swearingen, D. D.

NEW YORK

Albany—Bellin, M.
Bedford Hills—Briggs, E. F.
Brooklyn—Grossman, A.
Johnson, A. A. J.
Leahy, S. R.
Stone, A.
Volk, L. D.
Ft. Wright—Lindeman, C. E.
Little Valley—Hillsman, M. L.
Mooers—Taylor, A. B.
New York—Adams, E.
Beck, B. J.
Davidson, L. R.
Diamond, B.
Farr, C. E.
Frankfeldt, F. M.
Harrington, J. J.
Lowry, D.
Rogowitz, C. S.
Ryan, T. J.
Oswego—Halsey, W. M.
Ringland, J. B.
Owasco—Ford, N. B.
Poughkeepsie—Krieger, W. A.
Waverly—McNamara, J. J.

NORTH CAROLINA

Hope Mills—Bradford, B. M.

NORTH DAKOTA

Devils Lake—Moeller, T. O. E.

OHIO

Akron—Wells, J. J.
Cambridge—Wells, H. L.
Cleveland—Berr, A. H.
Cable, C. H.
Konrad, E. C.
Lyle, J. A.
MacLachlan, J.
Motto, M. P.
Thompson, H. S.
Columbus—Waite, H. C.
Delphos—Tillotson, J. R.
Mt. Gilead—Johnston, T. P.
Ridgeville Corners—Slosser, D. J.
Salem—Derfus, L. F.
Shelby—Busby, J. L.
S. V.
J. B.
Youngstown—Parillo, G. A.

OKLAHOMA

Boswell—McPherson, V. L. D.
Chelsea—Howard, W. A.
El Reno—Runkel, R. E.
Haileyville—Browning, R. L.
Kingston—Gordon, T. M.
Oklahoma City—Cooper, J. M.
Shawnee—Gallaher, W. M.
Tulsa—Price, H. P.
Wilburton—Munn, J. A.

PENNSYLVANIA

Easton-Correll, P. R.
G. B.
F. G.
y, J. J.
Iselin—Nevins, H.
Lewisburg—Gundy, C. A.
Minersville—McGurl, T. J.
Moon Run—Burkett, J. W.
New Kensington—Koontz, D. M.
Philadelphia—Barry, W. D.
McCandlish, H. S.
Smyth, C. M.
Thoen, C. L.
Pittsburgh—Anderson, J. H. W.
Behan, R. J.
Kamens, A. F.
Lasday, L.
Magoffin, M. B.
Shaw, J. P.
Utley, F. B.
Williams, I.
R. M.
R. W.
Stoneboro—Ferringer, J. E.
W. R.
H.
Wapwallopen—Santee, C. L.
Weatherby—Freyman, I. E.
Wilkes-Barre—Laux, L. J.
Williamsport—Harley, J. P.
Willock—Lake, H. S.

SOUTH CAROLINA

Abbeville—Gambrell, C. O.
McCormick—Fuller, R. M.
Mullins—Martine, F. L.
Pickens—Valley, J. L.
St. Matthews—Raysor, H. C.
Union—Sarratt, S. G.

SOUTH DAKOTA

Mitchell—Gillis, F. D.
Yankton—Hohf, S. M.

TENNESSEE

Knoxville—Bomar, F. H.
Lexington—Davidson, C. L.
Memphis—Chilton, C. M.
Nashville—Davis, M. B.
Sikes, A. T.
Neptune—Frazier, R. P.
Ripley—Sanford, W. V.

TEXAS

Antelope—Hilburn, R. E.
Canadian—Teas, F. D.
Dallas—Ferguson, R. C.
El Paso—Armistad, E. K.
Rheimheiner, E. W.
Gonzales—Penrod, L.
Handley—Lorimer, W. S.
Houston—Dickson, T. A.
Paris—Ramsey, F. D.
Victoria—Borden, J. L.
Waco—Brooks, C. H.

UTAH

Ogden—Ingebretsen, P.

VERMONT

Burlington—Avery, R. E.
Crossman, E. O.
Randolph—Gifford, J. P.
Windsor—Martin, S. S.

VIRGINIA

Quantico—Smith, E. D.
Roanoke—Keyser, L. D.
Richmond—Sycle, M. C.

WASHINGTON

Arlington—Harris, J. E.
Kennewick—Crosby, F. M.
Kent—Taylor, O.
Seattle—Jordan, A.
Waitsburg—Mount, H. A.

WEST VIRGINIA

Fairmont—Peters, A. L.
Newburg—Fortney, F. D.
Newell—Turk, H. A.

WISCONSIN

Fond du Lac—Harris, F. M.
Lander—Cooper, A. H.
Milwaukee—Grotjan, W. F.
Salinko, S.
Monroe—Collentine, G. E.
Princeton—Doyle, J. N.
Superior—Sanders, A. O.

WYOMING

Sheridan—Newell, M. A.

CORRECTION

In the issue of August 3, under the heading "Orders to Officers of the Medical Reserve Corps," appears the order of Lieut. GEORGE M. SMITH, of Waterbury, Conn., to Camp Shelby, Hattiesburg, Miss., base hospital, from the Mayo Clinic. This item should have appeared under the Wisconsin orders, since Lieutenant Smith's home is at Chippewa Falls, Wis.

Under "Commissions Accepted in the United States Naval Reserve Force," the name of H. S. Brown, Adah, Pa., is listed. Dr. Brown of Adah informs us that he has not applied for a commission in the Navy.

ORDERS TO OFFICERS OF THE MEDICAL CORPS; MEDICAL CORPS, NATIONAL ARMY, AND MEDICAL CORPS, NATIONAL GUARD

To Camp Beauregard, Alexandria, La., to examine the command for nervous and mental diseases, from Camp Wheeler, Major R. N. GREENE.

To Camp Custer, Battle Creek, Mich., for duty, from Northwestern Department, Capt. D. M. STEWART, Lieut. H. T. BIBBER.

To Camp Devens, Ayer, Mass., base hospital, from New York, Major A. B. DAVIS.

To Camp Dix, Wrightstown, N. J., for duty, from Camp Gordon, Lieut. A. E. PAGAN.

To Camp Forrest, Chickamauga Park, Ga., for duty, from Northeastern Department, Capt. J. W. SWEENEY, Lieut. F. H. BECKETT; from Southeastern Department, Lieuts. J. P. JONES, W. O. WRIGHTSON.

To Camp Fremont, Palo Alto, Calif., as commanding officer of base hospital, from San Francisco, Lieut.-Col. W. H. WINTERBERG.

To Camp Lewis, American Lake, Wash., for duty, from Camp Kearney, Major H. ROGERS.

To Camp Meade, Admiral, Md., as assistant to camp surgeon, from Fort Constitution, Major O. H. STANLEY.

To Camp Sheridan, Montgomery, Ala., base hospital, from Camp Shelby, Major R. H. SKILLERN.

To Camp Wheeler, Macon, Ga., base hospital, from Washington, D. C., Col. L. T. HESS.

To Canal Zone for duty, from Fort Snelling, Col. H. S. GREENLEAF.

To Chicago, Ill., for duty, from Canal Zone, Col. F. T. WOODBURY.

To Corpus Christi, Texas, for duty, from Southern Department, Major H. B. McMURDO.

To Fort Oglethorpe for instruction, Lieut. P. McDERMID.

To Fort Riley as commanding officer of base hospital, from Camp Fremont, Col. E. B. FRICK.

To Governors Island, N. Y., for physical examination, Major H. P. HARRIS.

To Hoboken, N. J., for duty, from Army Medical School, Lieuts. M. R. BROMAN, D. A. GREGORY, E. B. SAYE, from Camp Bowie, Lieut. W. P. FITE.

To New Haven, Conn., Yale Army Laboratory School, for duty, from Fort Leavenworth, Major W. E. CHAMBERS.

To Rockefeller Institute for special instruction, from Army Medical School, Lieut. S. H. CURTIS.

To Washington, D. C., for duty, from Fort Riley, Col. F. R. KEEFER. For duty in the Surgeon-General's Office, from Fort Riley, Col. E. R. SCHREINER.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. M. B. HOLZMAN.

ORDERS TO OFFICERS OF THE MEDICAL RESERVE CORPS

Alabama

To Camp Bowie, Fort Worth, Tex., for duty, from Camp Hancock, Lieut. J. K. LEGARE, Forkland, from Western Department, Lieut. J. F. HUGHES, Athens.

To Camp Crane, Allentown, Pa., for duty, from Camp Meade, Lieut. M. ROWE, Mobile.

To Camp Forrest, Chickamauga Park, Ga., for duty, from Northeastern Department, Lieut. H. BOXER, Birmingham.

To Camp Joseph E. Johnston, Jacksonville, Fla., base hospital, Lieut. J. T. ELLIS, Dothan.

To Camp Lee, Petersburg, Va., as orthopedic surgeon, from Fort Oglethorpe, Lieut. P. M. KYSER, Birmingham. Base hospital, Lieut. D. J. LONG, Birmingham.

To Camp Pike, Little Rock, Ark., for duty, from Camp McClellan, Lieut. N. I. WOOD, Birmingham; from Camp Sheridan, Capt. T. B. HUBBARD, [illegible]

To Camp [illegible] base hospital, from Camp Gordon, Capt. A. C. [illegible] For duty, Capt. C. J. WATTERSON, Birmingham.

To Fort Oglethorpe for instruction, Capts. J. M. BARFIELD, Lineville; L. JONES, Selma; Lieuts. W. H. ANDERSON, Athens; J. O. GRIFFIN, Goodwater; E. M. NORTON, Valley Head; B. C. RUDDER, Walker Springs.

To Fort Slocum, N. Y., for duty, from New Haven, Lieut. A. D. McFADDEN, Ariton.

To Hoboken, N. J., for duty, from Camp Crane, Capt. J. L. BOOTH, Buhl.

To Newport News, Va., for duty, from Fort Oglethorpe, Capt. J. McP. LOWREY, Birmingham.

To report to the governor of Alabama for duty as medical aide, Lieut. M. D. SMITH, Prattsville.

The following order has been revoked: *To Hoboken, N. J.,* base hospital, from New York, Capt. R. D. BROWN, Whistler.

Arizona

To Camp Grant, Rockford, Ill., for duty, from Chicago, Lieut. J. L. PRITCHARD, Winsboro.

To Fort Oglethorpe for instruction, from Camp Shelby, Lieut. E. B. THOMPSON, Benson.

To Fort Riley for instruction, Lieuts. T. P. MANNING, Flagstaff; R. E. POOLE, Mayer.

Honorably discharged on account of physical disability existing prior to entrance into the service, Capt. J. E. BACON, Miami.

Arkansas

To Camp Gordon, Atlanta, Ga., as orthopedic surgeon, from Fort McPherson, Lieut. R. A. WOLFF, Little Rock.

To Camp MacArthur, Waco, Texas, base hospital, from Camp Sheridan, Capt. J. J. SHERRILL, Warren.

To Fort Oglethorpe for instruction, Lieuts. W. D. LASSITER, Bierne; E. C. MOULTON, Fort Smith; F. A. NORWOOD, Little Rock.

To Fort Ontario, N. Y., base hospital, from Fort McPherson, Lieut. F. S. WATSON, Amity.

To Fort Riley for instruction, Capt. F. O. ROGERS, Little Rock; Lieuts. W. M. MATTHEWS, Crossett; E. BAKER, Dermott; J. R REINBERGER, Pine Bluff; C. V. POWELL, Round Pond.

California

To Camp Bowie, Fort Worth, Texas, for duty, from Camp Kearney, Capts. J. H. FRANKLIN, Guadalupe; R. HAGAN, Los Angeles; from Western Department, Capts. S. M. ALTER, Los Angeles; E. H. JORDAN, Tecate; Lieut. O. W. BUTLER, Los Angeles.

To Camp Crane, Allentown, Pa., for duty, from Camp Kearney, Capt. W. P. MILLIKEN, Oakland; from Camp Travis, Capt. S. Y. VAN METER, Los Angeles.

To Camp Dodge, Des Moines, Ia., for duty, from Western Department, Lieuts. F. M. WHITING, Oroville; P. K. JACKSON, San Luis Obispo.

To Camp Fremont, Palo Alto, Calif., base hospital, Capts. R. W. O'BANNON, Hollister; W. E. McLAUGHLIN, Los Angeles; B. F. MILLER, Whittier; Lieuts. C. D. SWEET, Fresno; E. E. ENDICOTT, Jackson; E. PURCELL, Oakland. For duty, from Western Department, Majors J. A. PARKS, San Diego; W. R. P. CLARK, San Francisco; Capts. O. O. YOUNG, Garden Grove; J. E. FAHY, Los Angeles; H. A. HOIT, Pasadena.

To Camp Grant, Rockford, Ill., for duty, from Fort Riley, Capt. W. V. CHALMERS-FRANCIS, Los Angeles.

To Camp Hancock, Augusta, Ga., base hospital, from Army Medical School, Lieut. F. E. HERZER, Loma Linda.

To Camp Kearney, Linda Vista, Calif., base hospital, Capts. J. H. PETTIS, Fresno; A. W. TEEL, Glendale; C. E. CURDTS, Oakland; H. A. FISKE, Pasadena; Lieuts. B. W. JOHNSON, Dos Palos; E. H. HALL, Los Angeles; R. G. VAN NUYS, Piedmont; W. T. McNEIL, Tracy. For duty, from Portland, Ore., Lieut. J. THORNTON, Los Angeles.

To Camp Lewis, American Lake, Wash., base hospital, Capts. A. A. ATKINSON, Dorris; C. O. MITCHELL, Fresno; M. L. LOOMIS, Los Angeles; N. C. BISSELL, Modesto; J. K. SWINDT, Pomona; Lieut. C. WAYLAND, Watsonville; from San Francisco, Capt. E. N. GREENWOOD, San Francisco.

To Camp Logan, Houston, Texas, base hospital, from Camp Kearney, Lieut. W. D. BISHOP, Sawtelle.

To Camp MacArthur, Waco, Texas, base hospital, from Fort Riley, Major B. F. ALDEN, San Francisco. For duty, from Camp Kearney, Capt. C. P. CONROY, Los Angeles; from Fort Oglethorpe, Lieut. G. T. WILHELM, Porterville; from Western Department, Lieut. G. M. DUNNE, San Francisco.

To Camp Meade, Admiral, Md., base hospital, from New York, Lieut. F. B. WEST, Los Angeles.

To Camp Pike, Little Rock, Ark., base hospital, from Camp Kearney, Capt. J. A. BALSLEY, Santa Monica; from Fort Logan H. Roots, Lieut. J. L. MILLER, Jr., Los Angeles; from San Francisco, Major W. C. CHIDESTER, San Mateo. For duty, from Western Department, Capt. J. A. JACKSON, San Diego.

To Camp Sherman, Chillicothe, Ohio, base hospital, from New York, Lieut. B. Y. MILLER, San Luis Obispo.

To Camp Travis, Fort Sam Houston, Texas, base hospital, from Fort Sam Houston, Lieut. J. H. SCHAEFER, Los Angeles.

To Camp Upton, L. I., N. Y., base hospital, from New Haven, Major C. J. HARBECK, Hayward.

To Camp Wheeler, Macon, Ga., base hospital, from New York, Lieut. C. M. MILLER, Oakley.

To Fort McHenry, Md., base hospital, from Camp Zachary Taylor, Lieut. J. C. IRWIN, Los Angeles; from New York, Lieut. J. SAYLIN, El Monte.

To Fort Oglethorpe for instruction, Capt. H. M. GRIFFITH, Pasadena; Lieut. D. E. SHEA, Los Angeles.

To Fort Ontario, N. Y., base hospital, from *Camp Cody,* Capt. L. L. RIGGIN, Pasadena.

To Fort Riley for instruction, Capts. J. V. BROWN, Glendale; M. CAMPBELL, D. W. SKEEL, Los Angeles; J. U. HALL, San Jose; R. B. DEMPSEY, Vallejo; B. PALMER, Venice; L. GRAHAM, Wagner; Lieuts. R. N. BRAMHALL, Fair Oaks; A. E. SKEENBERG, Fresno; F. C. SWEARINGEN, Pomona; V. A. MULLER, San Francisco; from Camp Fremont, Capt. J. T. FISHER, Los Angeles.

To Lee Hall, Va., for duty, from Camp Greene, Lieut. W. B. THOMPSON, San Francisco.

To New Haven, Conn., Yale Army Laboratory School, for duty, from Philadelphia, Major F. P. GAY, Berkeley.

To Rochester, Minn., Mayo Clinic, for instruction, and on completion *to Camp Grant,* Rockford, Ill., base hospital, Capt. C. A. JOHNSON, Los Angeles.

To San Francisco, Calif., for instruction, and on completion *to his proper station,* from Camp Kearney, Capts. H. L. THORPE, Los Angeles; P. M. SAVAGE, San Bernardino; Lieut. E. EAMES, San Francisco; from Camp Lewis, Lieut. W. T. ROTHWELL, Los Angeles. *To Letterman General Hospital,* for duty, Capt. F. K. COLLINS, Hollywood; Lieut. ROSCOE A. WHIFFEN, San Jose.

To report to the commanding general, Western Department, for assignment to duty, Major H. C. MOFFITT, San Francisco; Capts. C. A. TILLOTSON, Dinuba; F. W. HANFORD, Los Angeles.

To the inactive list, from Fort McHenry, Capt. L. W. ELY, San Francisco.

Honorably discharged, Capt. L. DeVILLE, San Diego.

Resignation of Lieut. V. H. PODSTATA, Livermore, accepted.

Canal Zone

To Newport News, Va., for duty, from Fort Oglethorpe, Lieut. B. M. M. PHELPS, Ancon.

Colorado

To Camp Crane, Allentown, Pa., for duty, from Fort Bliss, Lieut. C. R. FULLER, Salida.

To Camp Grant, Rockford, Ill., base hospital, Capt. J. H. WOODBRIDGE, Pueblo. For duty, from Fort Riley, Lieut. A. E. GILL, Sopris.

To Camp Logan, Houston, Texas, base hospital, from Army Medical School, Lieut. R. A. PAINE, Denver; from Camp Devens, Lieut. W. A. McGUGAN, Denver.

To Camp Pike, Little Rock, Ark., for duty, from Fort Riley, Lieut. O. A. DUNCAN, Crawford.

To Fort Des Moines, Iowa, base hospital, from Camp Custer, Lieut. F. H. CARPENTER, Denver.

To Fort Oglethorpe, base hospital, from New York, Lieut. W. C. HOTCHKISS, Brighton. For instruction, Capt. W. A. KICKLAND, Fort Collins; Lieut. P. B. WALLACE, Eagle.

To Fort Riley for [illegible] J. HOLLISON, C. G. McEACHERN, Denver [illegible] Gilman; B. B. BLOTZ, Rocky Ford; Lieuts. [illegible] Fort Morgan; J. H. McKNIGHT, Haxtum.

To Hoboken, N. J., base hospital, from Camp Crane, Capt. L. M. VAN METER, Lieut. R. W. JOHNSON, Denver.

To Mineola, L. I., N. Y., for instruction, from Camp Lewis, Capt. F. L. DENNIS, Colorado Springs.

To Newport News, Va., for duty, from Fort Oglethorpe, Lieut. R. SCHACHET, Denver.

To Otisville, N. Y., for duty, from New Haven, Capt. W. P. HARLOW, Boulder.

To report to the commanding general, Central Department, for assignment to duty, Capt. T. C. TAYLOR, Fort Collins.

To Rochester, Minn., Mayo Clinic, for instruction, and on completion *to his proper station,* from Camp Dodge, Capt. J. R. ESPEY, Trinidad.

To San Francisco, Calif., for instruction, and on completion *to his proper station,* from Camp Lewis, Capt. A. W. METCALF, JR., Henderson.

Connecticut

To Camp A. A. Hump[illegible] for duty, from Eastern Department, Lieut. J. F. [illegible]

To Camp Crane, Allentown, Pa., for duty, from Camp Jackson, Lieut. R. A. RICHARDSON, Bristol.

To Camp Devens, Ayer, Mass., base hospital, from Capt May, Capt. A. A. CRANE, Waterbury.

To Camp Jackson, Columbia, S. C., base hospital, from Walter Reed General Hospital, Lieut. M. CLIMAN, Hartford.

To Camp Meade, Admiral, Md., base hospital, from New Haven, Capt. E. M. BLAKE, New Haven.

To Camp Pike, Little Rock, Ark., for duty, from Camp Shelby, Capt. R. D. ROLLER, JR., Bridgeport.

To Camp Sheridan, Montgomery, Ala., with the board examining the troops for cardiovascular diseases, from Camp Wheeler, Capt. R. S. STARR, Hartford.

To Camp Travis, Fort Sam Houston, Texas, base hospital, from Fort Sam Houston, Capt. C. J. LEVERTY, Bridgeport.

To Camp Upton, L. I., N. Y., base hospital, from Camp MacArthur, Lieut. E. L. DOUGLASS, Groton.

To Camp Wheeler, Macon, Ga., base hospital, from Camp Gordon, Lieut. J. C. O'CONNELL, Bridgeport.

To Fort Oglethorpe for instruction, Lieuts. C. N. WOODFORD, Naugatuck; T. J. SULLIVAN, New Haven; E. L. SMITH, Waterbury; J. A. MAXWELL, Winsted.

To Fort Ontario, N. Y., base hospital, from Camp Upton, Lieut. E. J. WHALEN, Hartford.

To Hoboken, N. J., for duty, from New York City, Lieuts. H. G. JARVIS, Hartford; R. B. STREET, Suffield.

To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieut. H. R. MULLER, Darien.

To report to the commanding general, Northeastern Department, for assignment to duty, Lieut. H. D. MOORE, Danbury.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to his proper station,* from Camp Lee, Capt. J. B. SULLIVAN, New Haven.

To Walter Reed General Hospital, Takoma Park, D. C., for duty, Lieut. S. MAISLEN, Hartford; from Mineola, Capt. A. E. BRIDES, New Haven.

To Washington, D. C., for duty in the Surgeon-General's Office, from Camp Devens, Lieut. W. C. SANDY, Middleton.

The following order has been revoked: *To Fort Oglethorpe* for instruction, Lieut. L. G. BEARDSLEY, Bridgeport.

District of Columbia

To Army Medical School for duty, Lieut. B. M. PUCKETT, Washington.

To Camp A. A. Humphreys, Accotink, Va., for duty, from Fort Myer, Capt. W. A. FRANKLAND, Washington.

To Camp Bowie, Fort Worth, Texas, base hospital, from Camp Meade, Capt. W. VAN SWERINGEN, Washington.

To Camp McClellan, Anniston, Ala., base hospital, from Camp Wadsworth, Lieut. L. C. ROSENBURG, Washington.

To Camp Meade, Admiral, Md., for duty, from Fort Oglethorpe, Capt. S. N. MOSKOWITZ, Washington.

To Lakewood, N. J., for duty, Lieut. F. D. ADAMS, Washington.

To Plattsburg Barracks, N. Y., for duty, Capt. V. T. MOORE, Brookland; from New York, Lieut. D. G. DICKERSON, Washington.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to his proper station,* from Washington, Major T. E. NEILL, Washington.

To South Baltimore, Md., for duty, from Camp Meade, Capt. W. O. WETMORE, Washington.

To Walter Reed General Hospital, Takoma Park, D. C. for duty, from Army Medical School, Lieuts. H. F. DUNN, L. NEUMAN, Washington.

Florida

To Camp A. A. Humphreys, Accotink, Va., for duty, from Southeastern Department, Capt. R. C. HUBBARD, Bushnell.

To Camp Bowie, Fort Worth, Texas, base hospital, from Camp Joseph E. Johnston, Major H. A. PEYTON, Jacksonville.

To Camp MacArthur, Waco, Texas, for duty, from Southeastern Department, Capt. J. Y. PORTER, Key West Barracks.

To Camp Sherman, Chillicothe, Ohio, base hospital, from Camp Gordon, Capt. A. B. PARROTT, Jacksonville.

To Camp Upton, L. I., N. Y., for duty from Southeastern Department, Capt. E. LONG, Madison.

To Fort McHenry, Md., base hospital, from Camp Gordon, Capt. A. H. FREEMAN, Starke.

To Fort Oglethorpe for instruction, Lieuts. E. R. ACKLEY, Bartow; W. H. SPIERS, Chattahooche; from duty as a private, Lieuts. I. E. MARTIN, Fort Ogden; G. F. HIGHSMITH, Nocatee.

To Fort Ontario, N. Y., base hospital, from Fort Oglethorpe, Lieut. I. E. MARTIN, Fort Ogden.

Georgia

To Camp Crane, Allentown, Pa., for duty, from Camp Gordon, Lieut. C. K. SHARP, Arlington.

To Camp Custer, Battle Creek, Mich., for duty, from Camp Dodge, Lieut. W. M. TAPPAN, Augusta.

To Camp Devens, Ayer, Mass., base hospital, from Camp Zachary Taylor, Lieut. P. P. LANE, Waycross.

To Camp Jackson, Columbia, S. C., base hospital, from Army Medical School, Lieut. E. B. ANDERSON, Atlanta.

To Camp McClellan, Anniston, Ala., base hospital, from Fort Oglethorpe, Lieut. L. G. PARHAM, Chipley.

To Camp Pike, Little Rock, Ark., for duty, from Camp Gordon, T. L. DAVIS, Augusta; Lieut. G. S. BROOKE, Alpharetta.

To Camp [illegible] Ala., base hospital, from Camp Gordon, Cap[illegible] Atlanta.

To Camp [illegible] S. C., for duty, from Southeastern Department, Lieut. C. J. HIND, JR., Atlanta.

To Fort McPherson, Ga., for instruction, Lieut. H. G. CARTER, Atlanta.

To Fort Oglethorpe for instruction, Capt. J. H. CRAWFORD, Martin; Lieuts. W. J. TURNER, Ashburn; W. A. DEAN, C. L. PEACOCK, Atlanta; C. C. FITTS, Carrolton; W. R. SCHWANSS, Cecil; O. G. McKENZIE, Cordele; W. A. SIBBITT, Douglas; W. A. N. JONES, Gainesville; S. T. B. REVELL, Louisville; J. L. SUMMERLIN, Meigs; C. L. DAVIS, Patterson; A. F. ROUTLEDGE, Rome; D. L. DEAL, Statesboro; from Camp Sevier, Lieut H. B. BRADFORD, Atlanta.

To Montgomery, Ala., for duty, from Camp Greene, Major W. A. JACKSON, Atlanta.

To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieut. E. A. MOODY, Atkinson.

To Rockefeller Institute for instruction in bacteriology, and on completion *to Army Medical School,* from Camp Gordon, Lieut. E. R. ANTHONY, JR., Griffin.

To Syracuse, N. Y., with the board examining the troops for cardiovascular diseases, from Camp Meade, Lieut. V. B. WILLIAMS, Odessadale.

Hawaii

To Camp Lee, Petersburg, Va., for duty, from Fort Oglethorpe, Lieut. V. E. M. OSORIO, Hilo.

Idaho

To Mineola, L. I., N. Y., for instruction, from Fort Omaha, Major F. H. POOLE, Pocatello.

Illinois

To Camp Bowie, Fort Worth, Texas, for duty, from Camp Dodge, Major H. C. WOLTMAN, Jacksonville; from Western Department, Major P. G. CAPPS, Herrin; Lieut. G. A. TANKERSLEY, Owaneco.

To Camp Cody, Deming, N. M., base hospital, Capt. H. A. MILLARD, Minonk.

To Camp Crane, Allentown, Pa., for duty, from Camp Beauregard, Lieut. J. A. EASTMAN, La Rose; from Camp Grant, Lieut. C. H. BARTLING, Oak Park.

To Camp Custer, Battle Creek, Mich., base hospital, Major C. E. KAHLKE, Chicago. For duty, from Central Department, Major C. H. LOVEWELL, Chicago; from Chicago, Lieut. O. J. SCHOTT, Chicago; from Northeastern Department, Lieut. L. C. SONDEL, Columbia.

To Camp Devens, Ayer, Mass., base hospital, Lieut. LEROY H. SLOAN, Chicago.

To Camp Dodge, Des Moines, Iowa, for duty, from Camp Perry, Capt. M. A. WIESE, Chicago; from Fort Benjamin Harrison, Capt. M. W. SNELL, Litchfield; from Western Department, Capt. L. M. FIELD, Brownfield.

To Camp Forrest, Chickamauga Park, Ga., for duty, from Central Department, Major T. P. FOLEY, Chicago.

To Camp Fremont, Palo Alto, Calif., base hospital, from Camp Kearney, Lieut. E. L. CROUCH, Jacksonville.

To Camp Gordon, Atlanta, Ga., as orthopedic surgeon, from Fort McPherson, Lieut. C. M. DE BECK, Chicago.

To Camp Grant, Rockford, Ill., base hospital, Lieut. A. A. MERTZ, Pawnee. For duty, from Camp Dodge, Lieut. D. O. MEAD, Pinckneyville; from Fort Riley, Capt. F. W. MERRITT, Chicago; Lieut. L. H. GREEN, Johnston City.

To Camp Greene, Charlotte, N. C., as orthopedic surgeon, from Fort Oglethorpe Lieut. E. DEW. WISE Champaign.

To Camp Joseph E. Johnston, Jacksonville, Fla., base hospital, Capt. E. B. PACKER, Toulon; Lieut. C. P. LAPIN, Chicago.

To Camp Kearney, Linda Vista, Calif., for duty, from Fort Oglethorpe, Capt. G. H. MUSSELMAN, Chicago.

To Camp Lee, Petersburg, Va., base hospital, from Fort Oglethorpe, Lieut. E. H. W. KUPKE, Chicago.

To Camp Meade, Admiral, Md., for duty, from Fort McHenry, Lieut. R. S. SALK, Chicago; from Fort Oglethorpe, Lieuts. W. B. KILTON, Harvel; K. E. MONTGOMERY, Lawrenceville.

To Camp Pike, Little Rock, Ark., for duty, Lieut. E. H. WARSZEWSKI, Chicago; from Camp McClellan, Capt. W. T. DOWDALL, East St. Louis; from Camp Travis, Lieut. I. D. KELSHEIMER, Paxton; from Camp Zachary Taylor, Lieut. H. W. BAU, Chicago; from Western Department, Lieut. E. F. TATE, Homer.

To Camp Sevier, Greenville, S. C., base hospital, from Fort Oglethorpe, Lieut. C. M. TAYLOR, Decatur.

To Camp Sheridan, Montgomery, Ala., base hospital, from Camp Jackson, Lieut. F. A. ANDERSON, Chicago; from Fort Oglethorpe, Lieut. H. McB. GILLIS, Wood River.

To Camp Sherman, Chillicothe, Ohio, base hospital, from Camp Dodge, Capt. B. C. SYVERSON, Chicago; from Camp Gordon, Capt. G. M. LOEWE, Chicago; from New York, Capt. C. FORD, Waggoner.

To Camp Upton, L. I., N. Y., base hospital, Capt. A. B. YUDELSON, Chicago. With the board examining the troops for cardiovascular diseases, from Lakewood, Lieut. S. B. LEISER, Chicago.

To Camp Wadsworth, Spartanburg, S. C., for duty, from Camp Lee, Lieut. E. E. HOWARD, Rossville; from Fort Oglethorpe, Lieut. W. H. CONSER, Cambridge; from Northeastern Department, Capt. M. L. PUFFER, Downer's Grove.

To Camp Wheeler, Macon, Ga., base hospital, from New York, Lieut. L. L. TURNER, Chicago.

To Camp Zachary Taylor, Louisville, Ky., base hospital, Lieut. T. V. DAGNAULT, Chicago.

To Cape May, N. J., for duty, Lieut. A. A. LEBEAU, Chicago.

To Fort Des Moines, Iowa, base hospital, from Camp Grant, Lieut. W. J. PICKETT, Chicago; from Camp Shelby, Capt. J. H. EVANS, Chicago.

To Fort McHenry, Md., base hospital, from New York, Lieut. P. G. KITTERMAN, Chicago.

To Fort Oglethorpe as instructor, from Fort Riley, Capt. D. B. POND, Chicago; Lieut. G. P. GILL, Rockford. For instruction, Capts. G. H. MOORE, Aledo; F. W. JONES, Alton; T. C. HAYS, Canton; F. M. EDWARDS, Centralia; M. T. GOLDSTINE, J. W. HALL, J. LANSKI, H. H. MERRELL, D. C. PHILLIPS, Chicago; J. A. S. HOWELL, Elgin; J. H. LANGSTAFF, Fairburg; J. M. PALMER, Grayslake; R. C. DANFORD, Pana; J. R. ERNST, Peoria; W. R. FRINGER, Rockford; L. OSTROM, Rock Island; C. P. COLBY, C. L. PATTON, W. W. Van WORMER, Springfield; Lieuts. G. B. LUTYENS, Buffalo; F. L. BROWN, G. GUCA, A. W. HAEFFNER, O. HOLLINGER, S. G. KUBALA, E. W. MOSLEY, A. M. SCHEIER, C. G. SHANNON, R. R. L. STURGES, A. K. SUTCH, L. TABENSKI, W. T. WELCH, J. P. ZALESKI, Chicago; S. NAIKELIS, Cicero; R. W. JOHNSON, Findlay; R. D. LUSTER, H. C. SCHROEDER, Granite City; R. D. DUGAN, Illiopolis; C. D. SNIVELY, Ipava; L. ENOS, Jerseyville; A. H. FAHRNER, Joliet; M. L. DOLLAHAN, Lawrenceville; G. A. KERR, McConnell; W. E. CLAY, Mt. Carroll; A. A. WALKLING, Ottawa; L. C. IVES, E. W. SEABURG, Peoria; F. R. MORGAN, Quincy; A. C. C. WIEBUSCH, Steeleville; from Camp Gordon, Lieut. P. E. GREENLEAF, Bloomington; from Chicago, Lieut. J. MITCHELL, Chicago.

To Fort Ontario, N. Y., base hospital, from Camp Upton, Lieut. F. W. FIEDLER, Batchtown; from Fort McPherson, Capt. A. D. WEST, Moline.

To Fort Riley for temporary duty, from Army Medical School, Lieut. J. C. SMALL, Chicago. For instruction, Capts. M. PFEIFFENBERGER, [illegible]; R. A. ROACH, Chicago; J. H. ELLINGS[illegible]e; E. F. HERDIEN, Martinton; Lieuts. A. A. [illegible] R. L. BORCHERT, A. G. EVERHART, J. J. [illegible]NNER, E. L. WRIGHT, Chicago; W. P. CAN[illegible]. JOHNSON, McLeansboro; W. A. SIMMONS, [illegible]CKIE, D. ZAPHYRIADES, Springfield; H. A. [illegible] O'REILLY, Winchester.

[illegible], for duty, from Mineola, Lieut. P. H. ROWE, Chicago.

To Fort Thomas, Ky., for duty, from Camp Greene, Lieut. E. R. HERRMAN, Stanford.

To Hoboken, N. J., for duty, Lieut. H. T. SWANSON, Chicago.

To New Haven, Conn., for duty, Capt. A. T. TRAPP, Springfield; Lieuts. R. W. HARRELL, Chicago; G. K. FENN, Chicago Heights; from Camp Jackson, Capt. T. A. HOGAN, Chicago. *To Yale Army Laboratory School*, for instruction, Lieut. C. S. BOWMAN, Alsey.

To New York, Neurological Institute, for instruction, Capt. H. A. BEAM, Moline.

To report to the commanding general Central Department, for assignment to duty, Lieut. B. B. DUNN, Perry.

To Rochester, Minn., Mayo Clinic, for instruction, and on completion *to his proper station*, from Camp Dodge, Lieut. M. S. COFFLER, Chicago; from Camp Pike, Lieut. J. D. McCULLOUGH, Jr., Aurora.

To Syracuse, N. Y., for duty, from New Haven, Lieut. J. SCHLESINGER, Oak Forest.

To Walter Reed General Hospital, Takoma Park, D. C., for duty, from Army Medical School, Lieut. A. L. BEYERLEIN, Chicago; from Camp Cody, Capt. St. E. M. SALA, Rock Island.

The following orders have been revoked: *To Douglas, Ariz.*, from Fort Riley, Capt. J. A. BORTZ, Nauvoo. *To Fort Oglethorpe* for duty, from Fort Riley, Lieut. K. E. MONTGOMERY, Lawrenceville.

Indiana

To Army Medical School for instruction, from Fort Oglethorpe, Lieut. J. R. YOUNG, Cumberland.

To Camp Beauregard, Alexandria, La., for duty, from Camp Travis, Lieut. H. L. COOPER, South Bend.

To Camp Bowie, Fort Worth, Texas, base hospital, from Fort Oglethorpe, Capt. D. COHEN, Jeffersonville. For duty, from Western Department, Lieut. T. B. JOHNSON, Jamestown.

To Camp Custer, Battle Creek, Mich., base hospital, Capt. G. C. JOHNSON, Evansville; Lieuts. C. H. MEAD, Bluffton; J. A. M. ASPEY, Hope. For duty, from Camp Dodge, Capt. G. H. PENDLETON, Indianapolis. With the board examining the command for nervous and mental diseases, Lieut. P. S. JOHNSON, Sheridan.

To Camp Dodge, Des Moines, Iowa, base hospital, Lieut. B. L. CODY, Evansville. For duty, from Fort Benjamin Harrison, Lieut. L. A. SALB, Jasper.

To Camp Grant, Rockford, Ill., base hospital, Capt. A. B. MORGAN, LaFayette; Lieuts. V. GORDON, Blountsville; J. F. SWAYNE, Mecca.

To Camp Greene, Charlotte, N. C., base hospital, Capt. J. R. YUNG, Terre Haute.

To Camp Jackson, Columbia, S. C., base hospital, Capt. W. N. CULMER, Bloomington.

To Camp Lee, Petersburg, Va., base hospital, Lieut. J. L. REDDING, Bluffton.

To Camp MacArthur, Waco, Texas, base hospital, from Camp Shelby, Lieut. C. V. DAVIDSON, West LaFayette. For duty, Lieut. I. H. SONNE, Corydon.

To Camp Travis, Fort Sam Houston, Texas, for duty Lieut. A. A. YOUNG, Hammond.

To Camp Upton, L. I., N. Y., for duty, from Fort Oglethorpe, Lieut. K. C. FITZGERALD, New Harmony.

To Camp Wheeler, Macon, Ga., base hospital, from Camp Gordon, Lieut. W. G. THORNE, Columbus; from Camp McClellan, Lieut. H. H. MARTIN, La Porte.

To Fort Benjamin Harrison, Ind., for duty, from Central Department, Lieut. C. J. COOK, Indianapolis.

To Fort Des Moines, Ia., base hospital, from Camp Custer, Capt. J. C. GLACKMAN, Hatfield.

To Fort McHenry, Md., base hospital, from Camp Greene, Lieuts. G. C. PRICE, Judson; J. E. FREED, Terre Haute.

To Fort Oglethorpe for duty, from New York City, Lieut. C. A. MARSH, Newcastle. For instruction, Capts. S. C. NORRIS, Anderson; W. R. DAVIDSON, Evansville; J. P. SEALE, Fairmont; I. E. MORRIS, Fort Wayne; B. W. CHIDLAW, Hammond; S. McGAUGHEY, Indianapolis; H. N. SWEZEY, LaFayette; H. J. THOMPSON, La Porte; C. M. DUPUY, Riley; R. D. BLOUNT, Valparaiso; R. V. MURRAY, Zanesville; Lieuts. B. A. KING, Cicero; D. R. GOOD, Greenwood; E. RUPEL, L. H. STAFFORD, Indianapolis; E. M. BENNETT, Jamestown; D. HART, Montgomery; M. L. WAGNER, Peru; J. C. STAFFORD, Plainfield; W. S. COLEMAN, Rushville; J. H. HEWITT, Terre Haute; F. M. RUBY, Union City; C. S. ALBERTSON, Walton.

To Fort Ontario, N. Y., base hospital, from Camp Sheridan, Lieut. F. L. REESE, Bicknell.

To Fort Riley for instruction, Capts. R. E. JONES, Clayton; P. O. ENGLERTH, North Judson; S. A. CLARK, South Bend; C. L. ROWLAND, West Point; Lieuts. W. E. BARNES, Evansville; J. M. TITUS, Hebron; J. H. EBERWEIN, L. C. HICKS, H. R. WILLAN, Indianapolis; C. J. BROCKWAY, F. L. PYKE, LaFayette; J. C. ROSS, Marion; M. A. McDOWELL, Peru; A. H. RHODES, Princeton.

To Lee Hall, Va., for duty, from Camp Greene, Lieut. G. W. KIMBALL, La Porte.

To report to the commanding general, Central Department, for assignment to duty, Capt. S. R. CLARK, Petersburg.

The following order has been revoked: *To Camp Dodge*, Des Moines, Iowa, for duty, from Fort Benjamin Harrison,, Lieut. C. J. COOK, Indianapolis.

To Camp Dodge, Des Moines, Iowa, base hospital, Lieut R. W. WOOD, Newton. For duty from Western Department, Lieut. J. B. OWEN, Central City.

To Camp Gordon, Atlanta, Ga., base hospital, Capt. J. B. KEOGH, Dubuque.

To Camp Grant, Rockford, Ill., for duty, from Chicago, Lieut. B. C. HAMILTON, Jr., Jefferson.

To Camp McClellan, Anniston, Ala., base hospital, from New York, Lieut. B. T. WHITAKER, Boone.

To Camp Pike, Little Rock, Ark., for duty, from Camp Travis, Capt. W. A. BATES, Neola.

To Camp Shelby, Hattiesburg, Miss., base hospital, from New York, Lieut. W. S. CHESTER, Britt.

To Camp Sheridan, Montgomery, Ala., base hospital, from Camp Dix, Major A. R. HOOVER, Des Moines.

To Camp Sherman, Chillicothe, Ohio, base hospital, from Camp Zachary Taylor, Lieut. L. B. AMICK, Millersburg.

To Camp Upton, L. I., N. Y., base hospital, from Camp Grant, Lieut. J. E. EDGINGTON, Washington; from Camp Zachary Taylor, Lieut. C. E. MOORE, Newton.

To Fort Oglethorpe for instruction, Capts. B. J. CALLAHAN, Livermore; J. D. BROWNSON, [illegible]; Lieuts. V. H. HASEK, East Cedar Rapids; T. [illegible] [illegible] Madison; C. E. CHENOWETH, Iowa City; F. L. [illegible], Sioux City.

To Fort Riley for instruction, Capts. E. I. WOODBURY, Burlington; N. W. JOHNSON, Cedar Rapids; F. E. CRESSLER, Churdon; A. M. SHERMAN, Clarinda; J. E. KESSELL, Des Moines; C. D. HARLAN, Keswick; H. M. HOAG, Mason City; Lieuts. W. DIVEN, Atlantic; W. F. AMDOR, Carbon; R. J. MATTHEWS, Clarinda; C. C. BOWIE, Dedham; C. A. McGUIRE, Dubuque; W. H. MOTT, Farmington; J. L. CRUZEN, Lacona; C. A. MILLER, Nevinville; E. L. HOLLIS, Rolfe; C. H. GRAENING, Waverly; J. T. CARMODY, Wesley.

To Fort Sill, Okla., for duty, from Camp Greene, Capt. T. L. LONG, Woodward.

To Fort Thomas, Ky., for duty, from Chicago, Capt. A. B. PHILLIPS, Clear Lake.

[illegible] base hospital, from Camp Crane, Lieut. I. J. [illegible] For duty, from Camp Crane, Capts. N. McP. [illegible], E. D. TOMPKINS, Clarion; from Fort Oglethorpe, Lieut. E. P. WEIH, Clinton.

To New Haven, Conn., for duty, Capt. J. T. PADGHAM, Grinnell. *To Yale Army Laboratory School, for duty, from Fort Leavenworth*, Lieut. D. M. NYQUIST, Eldora.

To report to the commanding general, Central Department, for assignment to duty, Capts. F. N. MEADE, F. L. VANDERVEER, Cedar Falls; Lieut. H. H. HUNT, Hazleton.

To Waynesville, N. C., for duty, from New Haven, Lieut. M. D. JEWELL, Decorah.

To Willoughby, Ohio, for duty, from Camp Sherman, Capt. G. A. PLUMMER, Cresco.

Kansas

To Camp Crane, Allentown, Pa., base hospital, from New York, Lieut. C. E. SHEPPARD, Baldwin City. For duty, from Camp Travis, Lieut. C. E. YATES, Vinland.

To Camp Grant, Rockford, Ill., for duty, from Fort Riley, Capt. C. H. KOONTZ, Onaga; Lieut. J. L. PEPPERS, Newton.

To Camp Jackson, Columbia, S. C., base hospital, from Camp Crane, Capt. G. I. THACHER, Waterville.

To Camp Kearney, Linda Vista, Calif., for duty, from Portland, Ore., Lieut. J. C. McKINNON, Caldwell.

To Camp Las Casas, San Juan, P. R., base hospital, from Fort Riley, Major J. D. RIDDELL, Salina.

To Camp Lee, Petersburg, Va., base hospital, from New York, Lieut. J. A. H. WEBB, Stafford.

To Camp McClellan, Anniston, Ala., for duty, from Camp Upton, Capt. F. T. JOHNSON, Jr., Elmdale.

To Camp Sherman, Chillicothe, Ohio, base hospital, from *Camp Dix*, Lieut. C. W. HALL, Hutchinson.

To Camp Upton, L. I., N. Y., base hospital, from Fort Oglethorpe, Lieut. J. M. MARKS, Valley Falls.

To Camp Wadsworth, Spartanburg, S. C., base hospital, from New York, Lieut. F. B. SHELDON, Manhattan.

To Fort Oglethorpe, base hospital, from New York, Lieut. E. J. FROST, Wichita. For instruction, Lieut. M. F. RUSSELL, Great Bend.

To Fort Riley for instruction, Capts. A. A. SHELLEY, *Galena*; J. W. NIXON, Girard; G. R. GAGE, Hutchinson; E. A. REEVES, Kansas City; H. G. HUNSBERGER, Mount Hope; C. L. RANDALL, Neodesha; A. E. BILLINGS, Topeka; J. C. CALDWELL, W. M. MARTIN, Wellington; Lieuts. D. PETERSON, Atlanta; W. J. LOWIS, Colby; A. J. TURNER, Garnett; W. S. HUDIBURG, Independence; C. W. LONGENECKER, Kingman; W. B. BURR, Longton; E. C. LIGHTFOOT, Mineral; H. A. VINCENT, Perth; W. V. HARTMAN, Pittsburg; H. T. DAVIDSON, Wichita.

To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieut. T. M. AKNEW, Wichita.

To report to the commanding general, Central Department, for assignment to duty, Capt. B. H. JORDAN, Medicine Lodge.

To Rochester, Minn., Mayo Clinic, for instruction, and on completion *to his proper station*, from Camp Zachary Taylor, Capt. G. M. GAFFORD, Kinsley.

The following order has been revoked: *To Camp Logan*, Houston, Texas, base hospital, from Camp MacArthur, Lieut. A. B. SCOTT, Bucklin.

Kentucky

To Azalea, N. C., for duty, from Markleton, Major B. F. VAN METER, Lexington.

To Camp Beauregard, Alexandria, La., base hospital, Lieut. D. H. COLEMAN, Harrodsburg.

To Camp Dodge, Des Moines, Iowa, for duty, from Central Department, Lieut. W. M. EWING, Cave City.

To Camp Gordon, Atlanta, Ga., for duty, from Camp Greene, Lieut. J. M. STAUGHTON, Covington.

To Camp Lee, Petersburg, Va., base hospital, Lieut. C. T. WILFONG, Louisville.

To Camp MacArthur, Waco, Texas, base hospital, from Fort Riley, Lieut. F. G. AUD, Louisville.

To Camp Shelby, Hattiesburg, Miss., base hosptal, from Camp Zachary Taylor, Capt. M. FLEXNER, Louisville; from New York, Capt. V. BLYTHE, Paducah.

To Camp Sherman, Chillicothe, Ohio, base hospital, from Camp Zachary Taylor, Lieut. W. H. NEEL, Bowling Green.

To Fort Oglethorpe for instruction, Capts J. G. GAITHER, Hopkinsville; F. L. JUETT, J. D. MAGUIRE, Lexington; Lieuts. T. A. PEASE, Bardwell; J. F. DUNCAN, Bowling Green; B. N. COMER, Bradford; W. E. McWILLIAMS, Brodhead; H. F. MANN, Demossville; K. W. WEATHERS, Elkton; G. B. BROWN, JR., Georgetown; J. W. WHITE, Holland; M. H. MATHEWSIAN, Louisville.

To Houston, Texas, Ellington Field, for duty, from Camp MacArthur, Lieut. L. CHAMPION, Cadiz.

To New Haven, Conn., Yale Army Laboratory School, for instruction, from Fort Leavenworth, Lieuts. W. H. COMBS, Kirksville; G. S. BRZOZOWSKI, Louisville.

To Walter Reed General Hospital, Takomа Park, D. C., for duty, from Fort McPherson, Lieut. W. G. ECKMAN, Covington.

Louisiana

To Camp Bowie, Fort Worth, Texas, for duty, from Western Department, Capt. S. O. TURNER, DeRidder.

To Camp Crane, Allentown, Pa., for duty, from Camp Dix, Lieut. R. J. MAILHES, New Orleans.

To Camp Dix, Wrightstown, N. J., for duty, from Camp Crane, Lieut. A. S. COOPER, Mansfield.

To Camp Dodge, Des Moines, Iowa, for duty, from Cookeville, Tenn., Capt. W. J. ROBERTS, Colfax.

To Camp Logan, Houston, Texas, base hospital, from Camp Beauregard, Lieut. T. T. BATSON, New Orleans.

To Camp MacArthur, Waco, Texas, for duty, from Fort Oglethorpe, Lieut. J. R. STAMPER, Caspiana.

To Camp Shelby, Hattiesburg, Miss., base hospital, Lieut. S. M. BLACKSHEAR, New Orleans.

To Camp Sheridan, Montgomery, Ala., base hospital, from Fort Oglethorpe, Major T. P. LLOYD, Shreveport.

To Camp Travis, Fort Sam Houston, Texas, base hospital, from Fort Sam Houston, Major E. MOSS, New Orleans.

To Camp Wadsworth, Spartanburg, S. C., for duty, from Southeastern Department, Major R. HUNT, Shreveport.

To Fort Oglethorpe for instruction, Capts. L. O. CLARK, Lafayette; D. C. ILES, Lake Charles; Lieuts. F. S. TARLETON, Jeanerette; F. T. FRAZAR, Merryville; R. C. WEBB, Rayne.

To Fort Sill, Okla., for duty, Lieut. J. K. GRIFFITH, Slidell.

To Hoboken, N. J., for duty, from Fort Oglethorpe, Major K. W. NEY, New Orleans.

To Newport News, Va., for duty, from Fort Oglethorpe, Lieuts. W. E. BARKER, W. L. BENDEL, E. J. BERANGER, J. S. STELL, New Orleans

To Walter Reed General Hospital, Takoma Park, D. C., for duty, from Army Medical School, Lieut. H. T. SIMON, New Orleans.

The resignation of Capt. C. G. SALLES, Thibodaux, accepted.

Maine

To Camp McClellan, Anniston, Ala., as orthopedic surgeon, from Fort McPherson, Lieut. W. E. CLARKE, Damariscotta Mills.

To Camp Sheridan, Montgomery, Ala., base hospital, from Fort Oglethorpe, Capt. H. H. Crane, Bangor.

To Fort Oglethorpe for instruction, Capt. L. M. HOWES, Bangor; Lieuts. H. C. BUNDY. Lake View; M. S. KUPELIAN, Portland; A. J. STIMPSON, Waterford.

To Fort Ontario, N. Y., base hospital, from Camp Upton, Capt. H. V. TWEEDIE, Bucksport.

To Hoboken, N. J., base hospital, from Camp Crane, Capt. H. E. E. STEVENS, Lewiston.

To New Haven, Conn., for duty, and on completion to Azalea, N. C., for duty, from Rockefeller Institute, Capt. L. ADAMS, Bangor.

To Newport News, Va., for duty, from Fort Oglethorpe, Lieut. L. W. HADLEY, Union.

Maryland

To Baltimore, Md., Johns Hopkins, Hospital, as instructor, from New York, Major F. H. BAETJER, Cantonville.

To Camp Crane, Allentown, Pa., for duty, from Camp Meade, Capt. T. J. COONAN, Westminster.

To Camp Gordon, Atlanta, Ga., base hospital, Capt. H. O. MOSENTHAL, Baltimore.

To Camp Lee, Petersburg, Va., for duty, from Fort Oglethorpe, Major, M. L. TODD, Galloways.

To Camp Meade, Admiral, Md., base hospital, from Army Medical School, Lieut. L. A. M. KRAUSE, Baltimore. For duty, from Fort Oglethorpe, Lieut. J. KOTZ, Baltimore. To examine the command for nervous and mental diseases, from Fort McHenry, Lieut. F. N. OGDEN, Sykesville. With the board examining the troops for cardiovascular diseases, from Fort McHenry, and from Station, Camp Lee, Capt. A. D. ATKINSON, Baltimore.

To Camp Shelby, Hattiesburg, Miss., with the board examining the troops for tuberculosis, from New Haven, Lieut. P. W. CHRISTMAN, Baltimore.

To Camp [illegible] S. C., for duty, from Camp Greene, Lieut. [illegible] nore; from Southeastern Department, Capt. E. [illegible]

To Fort Oglethorpe for instruction, Capt. P. WORTH, Hagerstown; Lieuts. C. L. BATES, W. L. DENNY, J. S. FENBY, J. G. HUCK, E. NOVAK, J. E. TALBOTT, Baltimore; F. D. WORTHINGTON, Del Air; G. B. LYNCH, Hillsdale; from Camp Hancock, Lieut. M. RASKIN, Baltimore.

To Fort Riley for duty, from Camp Lee, Lieut. T. M. RIVERS, Baltimore.

To Camp Travis, Fort Sam Houston, Texas, for duty, from Southern Department, Capt. P. L. DAVIS, Baltimore.

To Hoboken, N. J., for duty, from Fort Oglethorpe, Lieut. M. J. EGAN, JR., Baltimore.

To Mineola, L. I., N. Y., for instruction, Lieut. F. H. LINTHICUP, Baltimore.

To Newport News, Va., for duty, from Fort Oglethorpe, Lieut. A. B. MORAN, Baltimore.

To New York, Neurological Institute, for instruction, Lieuts. J. H. BAIRD, H. A. GAILEY, Baltimore.

To Plattsburg Barracks, N. Y., for duty, from Camp Lee, Lieut. C. A. NEYMANN, Baltimore.

Honorably discharged on account of physical disability incurred in line of duty, Major G. WILSON, Baltimore.

The following orders have been revoked: *To Fort Oglethorpe* for instruction, Lieuts. J. H. BAIRD, J. P. SHEARER, Baltimore. *To Walter Reed General Hospital*, Takoma Park, D. C., Leut. H. M. BANKS, Baltimore.

Massachusetts

To Camp Bowie, Fort Worth, Texas, for duty, from Western Department, Lieut. J. D. SPAULDING, Boston.

To Camp Crane, Allentown, Pa., for duty, from Camp Travis, Lieut. G. H. CROFTON, Worcester.

To Camp Custer, Battle Creek, Mich., with the board examining the command for nervous and mental diseases, Lieut. J. L. McAUSLAN, Gardner.

To Camp Devens, Ayer, Mass., base hospital, Major D. F. JONES, Capt. S. H. BLODGETT, Boston; from Baltimore, Capt. A. W. SELLARDS, Boston. For duty, Lieut. H. B. STEVENS, Boston.

To Camp Dix, Wrightstown, N. J., base hospital, Lieut. H. B. McWILLIAMS, Williamstown. For duty, Capt. G. M. ALBEE, Worcester; from Camp Crane, Capt. A. C. SMITH, Brockton.

To Camp Gordon, Atlanta, Ga., for duty, from Camp Greene, Capt. W. C. SHEEHY, New Bedford.

To Camp Greene, Charlotte. N. C., base hospital, from Williamsbridge, Capt. F. H. LAHEY, Boston.

To Camp Lee [illegible] ise hospital, from Camp Devens, Lieut. A. J. C [illegible] To examine the command for nervous and [illegible] Camp Meade, Lieut. M. W. PECK, Marblehead.

To Camp MacArthur, Waco, Texas, for duty, from Camp MacArthur, Lieut. W. A. JILLSON, Westborough.

To Camp Pike, Little Rock, Ark., for duty, from Camp MacArthur, Lieut. N. M. COHEN, Boston.

To Camp Sevier, Greenville, S. C., as camp psychiatrist, from Camp Jackson, Lieut. C. B. PARTINGTON, Framingham.

To Camp Upton, L. I., N. Y., base hospital, Capt. H. R. CLOUDMAN, Brockton; Lieut. J. D SPAULDING, Boston; from Camp Hancock, Lieut. J. H. DOYLE, Fall River. For duty, from Fort Oglethorpe, Lieut. P. A. SHURTLEFF, Blandford.

To Camp Wadsworth, Spartanburg, S. C., base hospital, Lieuts. R. H. PHILBRICK, East Northfield; C. T. COBB, Northampton. For duty, from Southeastern Department, Lieut. A. K. YOOSUF, Worcester.

To Camp Wheeler, Macon, Ga., base hospital, from Camp Jackson, Capt. M. T. CAVANAUGH, Great Barrington; from Camp McClellan, Lieut. G. C. BERGERON, Springfield.

To Fort Oglethorpe for instruction, Capt. G. C. ROBERT, Holyoke; Lieuts. H. V. HYDE, D. S. KING, Boston; J. E. BURNETTE, Brockton; F. L. GIBSON, Holyoke; A. M. O'CONNOR, Housatonic; F. C. ATKINSON, Methuen; T. H. KENNEY, Northampton; E. J. MEYER, Somerville; D. J. BOLAND, J. H. FALVEY, Worcester.

To Fort Ontario, N. Y., base hospital, from Camp Devens, Lieut. E. A. MESERVE, Boston.

To Hoboken, N. J., for duty, Lieuts. G. A. FELCH, Boston; F. H. COFFIN, Haverhill.

To Lake Charles, La., for duty, from Mineola, Lieut. C. H. BIRDSALL, Boston.

To Mineola L. I., N. Y., for instruction, from Boston, Lieut. H. L. BABCOCK, Boston.

To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieuts. H. W. NEWELL, Boston; F. A. STANWOOD, Wellesley Hills.

To Newport News, for duty, from Fort Oglethorpe, Lieut. I. F. ARMSTRONG, Marlboro.

To New York City, Bellevue Hospital, for instruction, from Williamsbridge, Capt. T. F. CARROLL, Brookline.

To Rantoul, Ill., Signal Corps Aviation School, for duty, from Mineola, Capt. J. G. JENNINGS, Boston.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion to their proper stations, from Camp Meade, Lieut. H. E. MAYNARD, Winchester; from Camp Wheeler, Lieut. J. H. COOK, Quincy.

To Syracuse, N. Y., as orthopedic surgeon, from Fort McPherson, Lieut. K. JOHNSON, Pittsfield.

To Walter Reed General Hosptal, Takoma Park, D. C., for observation and treatment, from Camp Travis, Major E. B. Bigelow, Worcester.

To Washington, D. C., for duty, from New York, Major P. BROWN, Boston.

Resignation of Capt. H. MOORE, Newton, accepted.

Michigan

To Camp Bowie, Fort Worth, Texas, for duty, from Western Department, Capt. T. S. CROSBY, Wakefield.

To Camp Crane, Allentown, Pa., for duty, from Camp Lee, Capt. K. F. MAXEY, Detroit.

To Camp Dix, Wrightstown, N. J., with the board examining the troops for cardiovascular diseases, from Lakewood, Lieut. B. A. O'HARA, Detroit.

To Camp Dodge, Des Moines, Iowa, base hospital, Capt. R. D. McCLURE, Detroit. For duty, from Camp Perry, Lieut. G. G. ALWAY, Whitmore Lake.

To Camp Forrest, Chickamauga Park, Ga., for duty, from Camp A. A. Humphreys, Lieut. H. L. HURLEY, Jackson.

To Camp Grant, Rockford, Ill., base hospital, Lieut. A. C. McPHERSON, Grand Rapids.

To Camp Kearney, Linda Vista, Calif., for duty, from Portland, Ore., Lieut. H. B. McCRORY, Birch Run.

To Camp Meade, Admiral, Md., base hospital, from New York, Lieut. Z. L. KAMINSKI, Detroit.

To Camp Pike, Little Rock, Ark., for duty, from Camp Hancock, Lieut. I. S. GELLERT, Detroit; from Camp Sheridan, Lieut: O.

ROAN, Grand Rapids; from Western Department, Lieut. J. W. HAWKINS, Detroit. With the board examining the troops for cardiovascular diseases, Lieut. L. T. CRANE, Detroit.

To Camp Raritan, Metuchen, N. J., as orthopedic surgeon, from Fort McPherson, Capt. L. A. FARNHAM, Pontiac.

To Camp Upton, L. I., N. Y., base hospital, from Camp Devens, Capt. M. KOLLIG, Saginaw; *from* Fort Oglethorpe, Lieuts. R. R. MILLER, Harbor Springs; W. L. MACCANI, Ironwood.

To Camp Wadsworth, Spartanburg, S. C., for duty, from Fort Oglethorpe, Capt. J. HOUSTON, Swartz Creek.

To Camp Wheeler, Macon, Ga., base hospital, from Camp Sheridan, Capt. F. C. KINSEY, Grand Rapids.

To Fort Leavenworth, Kan., for duty, from Fort Porter, Capt. H. E. SAFFORD, Detroit.

To Fort Oglethorpe as instructor, from Fort Riley, Capt. H. S. COLE, Whitehall. For instruction, Capts. H. E. McLENNAN, Bellevue; H. H. MERRIMAN, Deckerville; A. D. McALPINE, F. T. F. STEPHENSON, Detroit; J. G. MANWARING, Flint; F. A. BOOT, J. F. X. GENDRON, Grand Rapids; CLARENCE L. HATHAWAY, Orion; Lieuts. C. W. SELLERS, Akron; S. L. BALLARD, Bay City; R. E. VAN DUSEN, Breckenridge; H. L. CHARLES, Calumet; L. E. BOVIK, *Crystal Falls*; A. H. LANGE, *E. J. LYNCH, Detroit*; L. A. LEWIS, Manistee; F. N. MORFORD, Muskegon.

To Hoboken, N. J., base hospital, from Fort Oglethorpe, Lieuts. M. M. HYMAN, Detroit; D. C. EISELE, Gwinn.

To Mineola, L. I., N. Y., for duty, from Fort Oglethorpe, Capt. M. J. SCHWANZ, Detroit.

To New Haven, Conn., for duty, from Fort Sam Houston, Capt. H. B. HARKNESS, Houghton.

To report to the commanding general, Central Department, for assignment to duty, Lieut. A. N. HOWE, Boyne Falls.

To Rochester, Minn., Mayo Clinic, for instruction, and on completion *to his proper station*, from Camp Custer, Capt. S. VAN BARMAN, Coloma.

To San Francisco, Calif., for instruction, and on completion *to his proper station*, from Camp Kearney, Lieut. W. G. JENKINS, Newberry.

To Syracuse, N. Y., as orthopedic surgeon, from Fort McPherson, Lieut. H. R. LEIBINGER, Detroit.

To Washington, D. C., for duty in the Surgeon-General's Office, Capt. J. H. HATHAWAY, Highland Park.

To the inactive list, from Walter Reed General Hospital, Major U. J. WILE, Ann Arbor.

Honorably discharged, Capt. L. BARTH, Grand Rapids; Lieut. G. W. WILSON, Detroit. On account of physical disability existing prior to entrance into the service, Capt. B. T. GOODFELLOW, Clio; Lieut. G. L. KOESSLER, Detroit.

Resignation of Major M. R. SUTTON, Flint, accepted.

The following order has been revoked: *To Douglas, Ariz.*, for duty, from Fort Riley, Lieut. H. C. HACKMAN, *Flint*.

Minnesota

To Army Medical School as orthopedic surgeon, *from New York*, Lieut. P. BLANCO, Rochester. For instruction, and on completion *to Fort Oglethorpe* for instruction, from Chicago, Lieut. B. T. BOTTELFSON, [illegible]

To Camp Accotink, Va., as orthopedic surgeon, from Chicago, Lieut. W. H. HALLORAN, St. Paul.

To Camp Bowie, Fort Worth, Texas, base hospital, from Camp Wadsworth, Capt. W. F. PLUMLEY, Rochester.

To Camp Custer, Battle Creek, Mich., for duty, *from* Camp Dodge, Lieut. M. C. PIPER, Sanborn.

To Camp Devens, Ayer, Mass., base hospital, Lieut. O. A. GROEBNER, Minneapolis; *from* New York, Lieut. J. B. CLAIR, Winstead.

To Camp Dodge, Des Moines, Iowa, base hospital, Capt. T. T. MANN, Minneapolis.

To Camp Gordon, Atlanta, Ga., as orthopedic surgeon, from Fort Riley, Lieut. O. L. WINTER, St. Paul.

To Camp Grant, Rockford, Ill., *for* duty, from Camp Dodge, Lieut. D. F. McCANN, Bemidji.

To Camp Kearney, Linda Vista, *Calif.*, *for duty, from Portland, Ore.*, Lieut. N. P. ANDERSON, Dunnell.

To Camp Lee, Petersburg, Va., as orthopedic surgeon, from *Fort* Oglethorpe, Lieut. *G. B. LYNCH*, Winona.

To Camp Pike, Little Rock, Ark., for duty, from Fort Oglethorpe, Lieut. R. S. FORBES, Duluth.

To Camp Travis, Fort Sam Houston, Texas, with the board examining the troops for tuberculosis, Lieut. J. F. TRAXLER, *Henderson*.

To Fort Des Moines, Iowa, base hospital, from Camp Grant, Capt. *I. R. MAERCKLEIN, Renville*.

To Fort McPherson, Ga., for duty, from *Washington*, Major W. M. CHOWNING, Minneapolis.

To Fort Oglethorpe, *base hospital*, from New York, Lieut. C. SANSING, Duluth. For instruction, Major A. R. COLVIN, St. Paul; Capts. A. MacLAREN, St. Paul; C. A. LESTER, Winona; Lieuts. G. McCREIGHT, J. R. NANNESTAD, Albert Lea; G. W. DAHLQUIST, Lancaster; F. L. GILLES, E. G. GILLMORE, Minneapolis; C. C. HOKE, Rochester; C. E. KRUGMEIER, St. Paul; A. W. DREW, Swanville.

To Fort Riley for duty, from Hoboken, Capt. F. G. BLAKE, Minneapolis. For instruction, Capts. J. P. FREEMAN, Glenville; C. C. WALKER, *Lamberton*; C. L. WARREN, Le Roy; J. V. JOHNSON, New Duluth; M. J. KERN, St. Cloud; Lieuts. E. W. ARNOLD, Adrian; F. W. DAVIS, *Alden*; H. J. SHELVER, Appleton; G. J. DIERKES, Foley; D. A. MacDONALD, G. L. MERKERT, Minneapolis; F. J. SCHATZ, Rosemount.

To Hoboken, N. J., base hospital, from Camp Upton, Lieut. L. H. REDELINGS, Rochester; from Fort Oglethorpe, Lieut. B. N. SOROSE, Detroit.

To New Haven, Conn., for duty, Capt. J. M. CONROY, Nopeming.

To report to the commanding general, Central Department, for assignment to duty, Capt. I. McC. ROADMAN, Canmia.

Mississippi

To Camp A. A. Humphreys, Accotink, Va., for duty, from Eastern Department, Lieut. J. G. ARCHER, Jr., Greenville.

To Camp Crane, Allentown, Pa., for duty, *from* Camp Beauregard, Lieut. A. L. LEWIS, Natchez.

To Camp McClellan, Anniston, Ala., base hospital, *from* Fort Oglethorpe, Lieut. W. C. NORRIS, De Sota.

To Fort Des Moines, Iowa, base hospital, from Camp Shelby, *Major* W. W. CRAWFORD, Hattiesburg.

To Fort Oglethorpe for instruction, Capts. O. N. ARRINGTON, Brookhaven; H. R. MILLER, Lamont; Lieuts. M. E. BRIDGES, Bobo; A. D. CHESTER, Cruger; J. B. HIRSCH, Greenville; J. P. WIGGINS, Merigold; C. P. PITTMAN, Ruleville; D. T. SAYLE, Torrance; C. J. EDWARDS, Vicksburg.

To Fort Ontario, N. Y., base hospital, from Camp McClellan, Lieut. J. S. ADAMS, DeKalb.

To Hoboken, N. J., base hospital, from Fort Oglethorpe, Capt. J. C. McNAIR, Fayette; Lieut. J. L. WHITE, Pinola.

To Lakewood, N. J., for duty, Lieut. R. L. BEADLES, Coffeeville.

To Newport News, Va., for duty, from Camp Sevier, Lieut. R. L. PEYTON, Jackson.

To Rochester, Minn., Mayo Clinic, for instruction, and on completion to *his proper station, from Camp* Sherman, Capt. J. C. ARMSTRONG, Water Valley.

Resignation of Lieut. F. S. HILL, Grenada, accepted.

The following order has been revoked: *To Hoboken, N. J.*, base hospital, from Camp Sevier, Lieut. K. T. KLEIN, Meridian.

Missouri

To Camp Beauregard, Alexandria, La., *for* duty, *from* Camp Travis, Lieut. H. C. BRASHEAR, St. Louis.

To Camp Bowie, Fort Worth, Tex., base hospital, from Fort Oglethorpe, Lieut. C. D. MENEFEE, Perry; from Fort Sill, Lieut. W. E. WEST, Trenton.

To Camp Custer, Battle Creek, Mich., *base hospital*, Major J. R. CLEMENS, Clayton.

To Camp Dodge, Des Moines, Ia., Base hospital, Lieut. J. L. SWARTS, St. Louis; from Cape May, Lieut. C. B. HUDSON, Montgomery City.

To Camp Logan, Fort Sam Houston, Tex., base hospital, from Camp Travis, Lieut. G. DAHMS, St. Louis.

To Camp MacArthur, Waco, Texas, base hospital Lieut. J. L. OWENS, Kansas City.

To Camp Meade, Admiral, Md., base hospital, from Fort McHenry, Lieut. H.-K. WALLACE, St. Joseph.

To Camp Perry, Ohio, for duty, from Fort Leavenworth, Major F. W. SHAW, *Mt. Vernon*.

To Camp Pike, Little Rock, Ark., for duty, from Camp Travis, Lieut. R. B. PLATT, Kansas City; from Fort Riley, Lieut. B. H. *EMERSON, Stockton. To examine the command* for nervous and mental diseases, Capt. M. L. UNDERWOOD, St. Joseph.

To Camp Shelby, Hattiesburg, Miss., with the board examining the troops for tuberculosis, from New Haven, Lieut. H. S. THOMAS, Kansas City.

To Camp Sheridan, Montgomery, Ala., base hospital, Capt. M. W. JACOBS, St. Louis.

To Camp Sherman, Chillicothe, Ohio, base hospital, Capt. S. B. WESTLAKE, St. Louis; from Camp Gordon, Lieut. E. D. McCARTY, St. Louis.

To Camp Zachary Taylor, Louisville, Ky., base hospital, Capt. J. M. DEAN, St. Louis.

To Fort Constitution, N. M., for duty, from Camp Dodge, Capt. E. F. COOK, St. Joseph.

To Fort Des Moines, Ia., base hospital, from Fort Riley, Capt. J. G. CALHOUN, St. Louis.

To Fort McHenry, Md., base hospital, from Camp Greene, Major R. BURNS, Jr., St. Louis.

To Fort Oglethorpe, as instructor, from Fort Riley, Capt. D. E. SCHMALHORST, St. Louis. Base *hospital, from New York*, Lieut. E. R. DEWEESE, Kansas City. For duty, from Fort Riley, Lieut. J. G. MONTGOMERY, Kansas City; from New York, Capt. L. O. *NICKELL, Macon*; Lieut. W. C. *VERNON*, *Kansas City*. *For* instruction, Capts. J. R. GREEN, Independence; L. C. LEWIS, J. S. LICHTENBERG, J. L. MYERS, W. A. SHELTON, Kansas City; *E. H. BRADLEY, Springfield*; H. E. HAPPEL, W. F. McNARY, St. Louis; Lieuts. G. G. BRAGG, Huntsville; G. A. SCHNEIDER, Island Falls; *A. M. GREGG, Joplin; J. D. BOEHM, Monett*; P. A. BRISKEY, W. J. SPARHAWK, St. Louis.

To Fort Riley for duty, from St. Louis, Major E. L. *OPIE*, St. Louis. For instruction, Capts. M. L. PETERS, Cameron; J. F. GRACE, Excelsior Springs; A. C. KNOX, Independence; C. C. PRICE, Kansas City; W. G. JONES, Lincoln; P. SCHUCH, St. Louis; J. G. McDONALD, Urich; Lieuts. J. G. TURLEY, Desloge; E. D. JAMES, Joplin; O. P. McCARTNEY, L. P. McKEEHAN, Kansas City; C. A. ORR, Mendon; D. PIERCE, Newark; J. B. WILLIS, Pattensburg; C. A. TUCKER, Springfield; S. F. ABRAMS, E. A. BURST, C. T. EBER, D. L. GOLDBERG, H. T. RANDLE, S. S. STEWART, J. B. STOKES, St. Louis; C. E. BENHAM, Tarkio; G. W. CARPENTER, Utica.

To Fort Sill, Okla., base hospital, Capt. HERLUF C. LUND, St. Louis; Lieut. T. E. CHAPMAN, *Joplin*.

To Hoboken, N. J., for duty, from Camp Crane, Major W. E. LEIGHTON, St. Louis; from New York, Lieut. S. F. WENNERMANN, St. Louis.

To New Haven, Conn., for duty, Lieut. J. L. MARDER, St. Louis. Yale Army Laboratory School, for instruction, Lieut. G. C. RODEBAUGH, Springfield; from *Army Medical School*, Capt. P. G. HURFORD, St. Louis.

To report to the commanding general, Central Department, *for assignment to duty*, Capt. A. H. HAMEL, St. Louis; Lieut. F. E. DeHONEY, Fredericktown.

To Rochester, Minn., Mayo Clinic, *for instruction*, and on completion *to his proper station*, from Fort Riley, Lieut. G. W. SMITH, Kansas City.

To Sacramento, Calif., Mather Field, for duty, from Portland, Capt. N. W. SHARPE, St. Louis.

To Washington, D. C., for duty *in the* Surgeon-General's Office, from Waco, Capt. D. T. JOSEPH, St. Louis.

Honorably discharged, Capt. W. L. KENNEY, St. Joseph. On account of physical disability existing prior to entrance into the service, Lieut. G. H. TARR, Poplar Bluff.

Montana

To Camp Lewis, American Lake, Wash., base hospital, Capt. *T.* W. WELSH, *Roundup*; *Lieut. L. P. GAERTNER, Three Forks*.

To Camp MacArthur, Waco, Texas, for duty, from Western Department, Lieut. W. O. UNGHERINI, Butte.

To Fort Oglethorpe, *as instructor*, from Fort Riley, Capt. A. L. WARD, Havre. For instruction, Capt. T. B. MARQUIS, *Livingston*.

To Fort Riley for instruction, Capts. R. E. SEITZ, Bozeman; A. N. CURRIE, Nashua; Lieuts. J. E. STUART, Livingston; F. LACKNER, C. T. PIGOT, Roundup.

To New Haven, Conn., Yale Laboratory School, for duty, from Fort Riley, Lieut. J. D. HOBSON, Missoula.

Nebraska

To Camp Custer, Battle Creek, Mich., for duty, from Chicago, Capt. F. L. FRINK, Newman Grove.

To Camp Gordon, Atlanta, Ga., base hospital, Capt. E. O. WEBER, Wahoo, Neb.

To Camp Grant, Rockford, Ill., for duty, from Fort Riley, Capt. F. D. BURGESS, Cedar Rapids.

To Camp Lee, Petersburg, Va., base hospital, from Camp Dodge, Lieut. T. E. ATKINSON, Mullen.

To Camp Meade, Admiral, Md., base hospital, Capt. A. E. BUCHANAN, Freemont.

To Camp Pike, Little Rock, Ark., for duty, from Camp Travis, Lieut. R. E. ROCHE, Sidney.

To Camp Sheridan, Montgomery, Ala., with the board examining the troops for tuberculosis, from Fort Riley, Lieut. E. O. WILSON, Madison.

To Camp Sevier, Greenville, S. C., base hospital, from New York, Lieut. E. W. FETTER, North Platte.

To Cape May, N. J., for duty, from New York, Major E. C. HENRY, Omaha.

To Fort Keogh, Mont., for duty, from Portland, Ore., Lieut. W. E. DOANE, North Bend.

To Fort Oglethorpe, as instructor, from Fort Riley, Lieut. F. A. WILMOT, Bertram. For instruction, Capts. I. W. HAUGHEY, Aurora; L. C. BLEICK, W. P. HANEY, Omaha; Lieuts. A. J. BOREN, Hastings; E. C. SAGE, Omaha.

To Fort Riley, for duty from Camp Dodge, Major W. J. REDFIELD, Grand Island. For instruction, Capt. E. E. RIDER, Bertrand; Lieuts. F. N. TOWNLEY, Kenesaw; J. J. FOSSLER, Millard; W. P. HYNES, Potter.

To Hoboken, N. J., base hospital, Capt. G. H. WALKER, Lincoln.

To New Haven, Conn., for duty, Lieut. G. S. REEDER, Fremont. Yale Army Laboratory School, for duty, Lieut. W. A. DANIELSON, Osceola.

To Picron, Ark., for duty, from Southern Department, Capt. J. M. WOODARD, Lincoln.

To report to the commanding general, Central Department, for assignment to duty, Lieut. A. H. ISSAKIAN, Niobrara.

To Rochester, Minn., Mayo Clinic, for instruction, and on completion *to his proper station,* from Camp Pike, Capt. H. A. JOHNSON, Tekamoh.

To San Francisco, Calif., for instruction, and on completion *to his proper station,* from Camp Cody, Lieut. H. J. JENKINS, Omaha.

The following order has been revoked: *To Douglas, Ariz.,* for duty, from Fort Riley, Lieut. T. LAHNERS, Belvidere.

New Hampshire

To Camp Upton, L. I., N. Y., base hospital, Capt. D. E. SULLIVAN, Concord.

To Fort Leavenworth, Kan., to examine the command for nervous and mental diseases, from Camp Pike, Capt. H. W. CLEASBY, Lancaster.

To Fort Oglethorpe for instruction, Capts. F. C. SWEENEY, East Jaffrey; A. J. MONGE, Newmarket; C. H. QUINN, West Concord; Lieuts. W. E. SMITH, Franklin; L. R. BROWN, Laconia; J. M. PAGE, Littleton; H. S. PLATTS, Troy; F. E. CLOW, Wolfsboro.

To Walter Reed General Hospital, Takoma Park, D. C., for duty, Capt. F. S. TOWLE, Portsmouth.

The following order has been revoked: *To Camp Las Casas,* San Juan, Porto Rico, base hospital, Lieut. J. C. ECKHART, Sanbornville.

New Jersey

To Camp A. A. Humphreys, Accotink, Va., for duty, from Eastern Department, Lieuts. G. V. MORSE, Bloomfield; C. F. VORRHIS, Palmyra.

To Camp Devens, Ayer, Mass., base hospital, from Camp McClellan, Capt. W. JAMES, German Valley; from Camp Sherman, Lieut. N. FURST, Newark.

To Camp Dix, Wrightstown, N. J., base hospital, Lieut. N. H. PROBASCO, Plainfield.

To Camp Gordon, Atlanta, Ga., base hospital, Lieut. J. S. VANNAMAN, Princeton.

To Camp Holabird, Baltimore, Md., for duty, Lieut. B. W. BOTHYL, Paterson.

To Camp Lee, Petersburg, Va., base hospital, Lieut. J. L. FARDEN, Irvington.

To Camp MacArthur, Waco, Tex., for duty, from Fort Oglethorpe, Lieut. L. M. COLLINS, Greystone.

To Camp Meade, Admiral, Md., for duty, from Fort Oglethorpe, Capt. H. G. MacDONALD, Hackensack. To examine the command for nervous and mental diseases, Lieut. R. STEWART, Sacaucus.

To Camp Pike, Little Rock, Ark., for duty, from Camp Wheeler, Lieut. L. S. KELLEY, Newark; from Fort Oglethorpe, Lieut. M. CHESLER, Atlantic City.

To Camp Sherman, Chillicothe, Ohio, base hospital, from Camp Dix, Capt. A. F. McBRIDE, Paterson.

To Camp Upton, L. I., L. Y., base hospital, from Williamsbridge, Major W. A. SHERWOOD, Jersey City.

To Camp Wadsworth, Spartanburg, S. C., for duty, from Camp Upton, Lieut. C. H. PRATT, Plainfield; from Fort Oglethorpe, Lieut. L. J. BOHL, Paterson; from Hampton, Lieut. J. G. COLEMAN, Hamburg; from Southeastern Department, Lieut. M. B. KIRKPATRICK, Trenton.

To Fort Des Moines, Ia., base hospital, from Fort McPherson, Major W. L. VROOM, Ridgewood.

To Fort McHenry, Md., base hospital, from Camp Dix, Capt. L. E. Poole, West Hoboken; From Camp Greene, Lieut. L. M. KALAHER, Jersey City.

To Fort Oglethorpe for instruction, Capts. W. J. ARLITZ, Hoboken; H. V. HUBBARD, C. B. LUFBURROW, Plainfield; Lieuts. H. S. JONES, Arlington; J. S. MARK, Chrome; C. C. FERGUSON, Jersey City; L. S. BLUMBERG, R. D. SWAIN, F. C. WEBER, Newark; from Camp Devens, Lieut. J. J. O'CONNOR, Newark; from Camp Lee, Capt, W. A. NORVAL, Paterson.

To Hoboken, N. J., for duty, from Camp Crane, Capt. J. A. HOLLAND, Montclair.

To New Haven, Conn., for duty, from Camp Gordon, Lieut. G. E. HARHEN, Newark.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to Camp Dix,* Wrightstown, N. J., base hospital, Capt. J. F. HAGERTY, Newark.

Resignation of Lieut. P. MARVEL, Atlantic City, accepted.

New Mexico

To Camp Cody, Deming, N. M., base hospital, Capt. T. E. PRESLEY, Roswell.

To Camp MacArthur, Waco, Tex., for duty, from Camp Cody, Capt. O. J. WESTLAKE, Silver City.

To Fort Riley for instruction, Lieut. C. E. KINDALL, Burley.

The following order has been revoked: *To Camp Grant,* Rockford, Ill., for duty, from Camp Greene, Lieut. H. K. RIDDLE, Reserve.

New York

To Biltmore, N. C., for duty, Lieut. J. W. WALTHER, Brooklyn.

To Camp Abraham Eustis, Lee Hall, Va., camp hospital, from Williamsbridge, Capt. L. B. ROBINSON, New York. For duty, from Morrison, Capt. E. L. HAZELTINE, Jamestown.

To Camp Bowie, Fort Worth, Texas, base hospital, from Fort Oglethorpe, Capt. H. L. PURDY, New York.

To Camp Crane, Allentown, Pa., for duty, from Camp Dix, Capt. G. S. SHIBLEY, Lieut. W. FRIEDMAN, New York; from Camp Hancock, Lieuts. F. GLUCKSMAN, New York; H. D. MacFARLAND, Westerville; from Camp Jackson, Capt. G. M. PARKHURST, Bath; from New York, Major L. JACHES, New York.

To Camp Custer, Battle Creek, Mich., for duty, from Eastern Department, Lieut. A. S. KATZMAN, Floral Park.

To Camp Devens, Ayer, Mass., as assistant, to the division surgeon, from Eastern Department, Capt. L. W. FALKNER, Youngstown. With the board examining the troops for cardiovascular diseases, from Lakewood, Lieut. J. J. KEATING, New York.

To Camp Dix, Wrightstown, N. J., base hospital, Capt. G. W. BEATTY, Brooklyn.

To Camp Dodge, Des Moines, Ia., base hospital, from Camp Grant, Lieut. D. M. NATANSON, New York.

To Camp Forrest, Chickamauga Park, Ga., for duty, from Eastern Department, Capt. R. B. MORRIS, Olean.

To Camp Gordon, Atlanta, Ga., for duty, from Camp Greene, Lieut. W. H. TAYLOR, Brooklyn.

To Camp Greene, Charlotte, N. C., base hospital, Capt. R. M. JONES, New York; from Fort McPherson, Capt. T. S. WEST, Yonkers.

To Camp Harry L. Jones, Douglas, Ariz., for duty, from Vancouver Barracks, Lieut. A. H. WHEELER, Albany.

To Camp Lee, Petersburg, Va., base hospital, from Army Medical School, Lieut. H. BAKWIN, New York; from Camp Devens, Lieut. C. F. BOVE, Catskill.

To Camp Logan, Houston, Tex., base hospital, from Camp Beauregard, Capt. J. F. LONG, Brooklyn.

To Camp MacArthur, Waco, Texas, for duty, from Fort Oglethorpe, Lieut. D. J. TILLON, Elmira; from Southeastern Department, Major T. W. MALONEY, Geneva.

To Camp McClellan, Anniston, Ala., base hospital, from Fort Oglethorpe, Lieut. W. J. O'CONNELL, Brooklyn.

To Camp Meade, Admiral, Md., base hospital, Capt. S. J. KEYES, New York; from Fort Oglethorpe, Lieut. H. S. VAN NOSTRAND, Little Neck. For duty, from Camp Upton Lieut. J. J. GOLDBLATT, New York; from Fort Oglethorpe, Lieut. I [illegible] rk. With the board examining the troops for [illegible] om Lakewood, Lieut. S. KAHN, New York.

To Camp Newton D. Baker, El Paso, Texas, base hospital, from Camp Travis, Major J. E. DAUGHERTY, Brooklyn.

To Camp Pike, Little Rock, Ark., for duty, from Camp Gordon, Capt. W. N. BARNHARDT, Central Islip; from Fort Oglethorpe, Lieut. A. B. SULLIVAN, New York.

To Camp Sevier, Greenville, S. C., base hospital, from Fort Oglethorpe, Lieut. G. B. THAXTON, New York.

To Camp [illegible] ss., base hospital, from New York, Lieut. H. E. [illegible] York.

To Camp [illegible], Ala., base hospital, from Camp Dix, Lieut. H [illegible] v York; from Camp Shelby, Lieuts. H. M. VANN, Brooklyn; A. E. Van NESS, New York; from Camp Wadsworth, Lieut. F. V. HOEHN, Waterloo; from Richmond College, Va., Capt. C. T. GRAHAM, Rochester.

To Camp Sherman, Chillicothe, Ohio, base hospital, Lieut. H. M. GOODYEAR, New York.

To Camp Upton, L. I., N. Y., base hospital, Capts. C. F. CLAASSEN, Brooklyn; E. FULLER, New York; Lieut. M. C. FISCHMAN, New York; from Hoboken, Major D. BOVAIRD, New York; from Walter Reed General Hospital, Capt. F. E. BROWN, Brooklyn; Lieut. J. L. FAGAN, New York. For duty, Capt. W. J. McGRATH, Sylvan Beach.

To Camp Wadsworth, Spartanburg, S. C., for duty, from Camp Upton, Lieut. M. A. RAMIREZ, New York; from Fort Oglethorpe, Lieut. T. M. REID, Jr., Brooklyn; from Northwestern Department, Capt. J. RAPHAEL, Brooklyn.

To Camp Wheeler, Macon, Ga., base hospital, from Camp Sheridan, Lieut. G. J. SIGNORELLI, Brooklyn; from Fort Ontario, Major L. D. McEVOY, New York.

To Columbus Barracks, O., for duty, from Fort Benjamin Harrison, Lieut. M. A. SAGOWITZ, New York.

To Detroit, Mich., for duty, from Eastern Department, Capt. E. E. GILLICK, Niagara Falls.

To Fort Benjamin Harrison, Ind., for duty, from Camp Sherman, Lieut. A. M. MULHOLLAND, New York.

To Fort Des Moines, Ia., base hospital, from Camp Greene, Capt. C. H. BALDWIN, Utica.

To Fort McHenry, Md., base hospital, from Camp Hancock, Lieut. W. E. DIEFENBACH, Munde; from Camp Meade, Capt. R. L. CROCKETT, Oneida. For duty, Lieut. J. AIKMAN, Rochester.

To Fort McPherson, Ga., base hospital, from Camp Crane, Major W. E. BUTLER, New York.

To Fort Omaha, Neb., for duty, from Fort Worth, Lieut. A. G. COOK, Brooklyn.

To Fort Oglethorpe, base hospital, from New York City, Lieut. B. [illegible] For duty, from Biltmore, Lieut. A. E. [illegible] Chicago, Lieut. J. L. LINN, Brooklyn. [illegible] T. DARLINGTON, [illegible] York; Capts. G. F. [illegible]ROVE[illegible]ooklyn; J. C. TEAS, [illegible]OCKS[illegible], New York; E. W. [illegible] D. [illegible]kers; Lieuts. J. H. [illegible] DAV[illegible]d; J. A. BILLETO, [illegible] KORNFEL[illegible] S. SHAPIRO, I. E. SUMNER, S. TIRMAN, M[illegible] J. WOODWORTH, Brooklyn; V. W. DUTTO[illegible] S. W. CLAUSON, Canandaigua; R. M. PALM[illegible] WALKER, Irondequoit; G. A. DISTLER, L. [illegible] ROHR, Jamaica; M. L. HILLAMAN, Little Valley; H. ACKERMAN, A. ANESH, A. S. BLUMGARTEN, F. C. COSTEN, S. M. HYMAN, N. B. JENKINS, M. KUPPERMAN,

L. LURIE, S. W. ROCK, C. RUDNICK, A. R. SHIRLEY, L. SIEGAL, W. STEINHAUSER, E. STERN, E. H. SUTLIFF, G. E. WURTZEL, New York; S. S. BULLEN, E. S. GREENE, Rochester; M. SHIMBERG, F. S. WETHERELL, Syracuse; H. G. BALDWIN, Tannersville; T. B. HENRY, Tompkinsville; E. W. WILKINS, West Albany; from Camp Dix, Lieut. H. C. JOHNSTON, New York; from Camp Hancock, Lieut. R. W. TURNER, Albany; from Camp McClellan, Lieut. J. J. BOLAND, New York.

To Fort Ontario, N. Y., base hospital, from Camp McClellan, Lieut. W. L. WEEDON, Clifton Springs.

To Fort Sam Houston, Texas, base hospital, Lieut. A. RAVICH, Brooklyn. For duty, from Houston, Capt. G. W. CRISSEY, Mechanicsville.

To Fort Sill, Okla., base hospital, from Walter Reed General Hospital, Lieut. A. W. JACOBS, New York.

To Fort Thomas, Ky., for duty, Lieut. M. L. FUCHS, New York.

To Fort Worth, Texas, for duty, from Fort Oglethorpe, Lieuts. L. K. STELLE, Kingston; E. C. WINSOR, Syracuse.

To Hoboken, N. J., base hospital, from Fort Oglethorpe, Capt. G. D. DARE, Morrisonville; Lieut. F. BRANCATO, New York. For duty, from Camp Bowie, Lieut. M. J. HOY, Yonkers; from Camp Crane, Lieut. H. E. GAK, South Onondaga; from Fort Riley, Capt. O. E. UTZINGER, Ithaca; from Wichita Falls, Lieut. B. ARENSON, Brooklyn.

To Lakewood, N. J., for duty, Capt. G. G. STRAUB, Brooklyn.

To Mineola, L. I., N. Y., for duty, from Fort Oglethorpe, Lieut. F. B. MAGUIRE, Albany; from Fort Sill, Capt. J. D. GULICK, Schenectady. Signal Corps *Aviation School, for instruction, from* New York, Capt. W. A. SCRUTON, New York.

To New Haven, Conn., as instructor, from Fort Slocum, Capt. F. B. TRUDEAU, Saranac Lake. For duty, from Camp Devens, Capt. H. JUDOWITZ, *Brooklyn; from Camp Joseph E. Johnston,* Capt. R. E. PLUNKETT, Whitehall. Yale Army Laboratory School, for instruction, from Army Medical School, Lieuts. R. P. DOBBIE, F. W. PALMER, Buffalo; from Fort Leavenworth, Lieut. E. J. PELLINI, New York.

To Newport News, Va., for duty, from Camp Gordon, Lieut. A. E. SMITH, Cohoes; from Camp Jackson, Capt. C. F. YERDON, Brooklyn; from Fort Oglethorpe, Lieuts. K. A. SMITH, Lackawanna; M. ALEXANDERS, New York; G. B. GILMORE, Staten Island.

To New York, Bellevue Hospital, for instruction, and on completion *to Camp Greene*, Charlotte, N. C., base hospital, from duty as a private, Lieut. A. MILICI, New York. Neurological Institute, for instruction, Lieut. S. SILBERT, New York.

To Ogdensburg, N. Y., for duty, and on completion *to the inactive list*, Capt. E. J. WYNKOOP, Syracuse.

[illegible] *Department* for duty, from Washington, Major F. J. [illegible] York.

[illegible] for duty, from Mineola, Capt. T. F. BRIDGMAN, New York.

To report to the commanding general. Eastern Department, for assignment to duty, Major W. T. HELMUTH, New York.

To Rochester, Minn., Mayo Clinic, for instruction, and on completion *to his proper station,* from Camp Sherman, Lieut. J. A. CAMPBELL, New York.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to Fort Oglethorpe* for instruction, Capt. E. K. TANNER, Brooklyn. On completion *to his proper station*, from Camp Dix, Lieut. F. S. SCHOONOVER, Rochester; from Camp Greene, Capt. W. S. COOKE, Otego; Lieut. W. L. MUNSON, Granville.

To Syracuse, N. Y., as orthopedic surgeon, from Fort McPherson, Lieut. F. N. POTTS, Buffalo. For duty, from Camp Devens, Capt. M. A. ROTHSCHILD, New York; from New Haven, Lieuts. J. I. RANDALL, Albany; F. C. BALDERREY, Ithaca; B. R. KELLEY, New York.

To Walter Reed General Hospital, Takoma Park, D. C., for duty, Capt. J. KETTERLE, Brooklyn; Lieut. R. G. FOWLER, *Buffalo.*

To Washington, D. C., for duty, from Eastern Department, Capt. E. L. AYME, New York.

To Waynesville, N. C., for duty, from New Haven, Capt. M. E. LEARY, Rochester.

To Williamsbridge, N. Y., for duty, Lieut. D. S. FETTES, Brooklyn.

Honorably discharged on account of physical disability existing prior to entrance into the service, Major T. W. HASTINGS, New York.

Resignations of Major R. A. HIBBS, New York, Capt. M. McDANIELS, Ithaca; *Lieut.* T. BELL, *Brooklyn*, accepted.

The following orders *have been* revoked: *To Fort Oglethorpe* for instruction, Lieuts. G. S. DUDLEY, New York; F. A. KNOPE, Rochester. *To Hoboken, N. J.*, base hospital, from Camp Upton, Lieut. W. H. SEWARD, Amsterdam. *To Newport News, Va.*, for duty, from Camp A. A. Humphreys, Lieut. D. PASHMAN, Brooklyn.

North Carolina

To Camp A. A. Humphreys, Accotink, Va., for duty, from Eastern Department, Lieut. B. B. STURDIVANT, Sunburst.

To Camp Bowie, Fort Worth, Texas, for duty, from Western Department, Capt. R. B. HAYES, *Hillsboro.*

To Camp Dodge, Des Moines, Ia., for duty, from Camp Perry, Lieut. J. C. DYE, Statesville.

To Camp Pike, Little Rock, Ark., for duty, from Camp Travis, Lieut. E. M. McIVER, Jonesboro; from Western Department, Capt. O. L. STRINGFIELD, Jr., Mars Hill.

To Camp Sevier, Greenville, S. C., for duty, from Camp Wheeler, Lieut. E. S. BARR, Asheville.

To Camp Shelby, Hattiesburg, Miss., base hospital, Lieut. C. P. MANGAM, Kinston.

To Camp Wadsworth, Spartanburg, S. C., for duty, from Fort Oglethorpe, Lieut. P. S. EASLEY, Statesville; from *Southeastern Department*, Lieut. M. R. FARRAR, Greensboro.

To Fort McHenry, Md., base hospital, from Biltmore, *N. C., Major* W. L. DUNN, Asheville.

To Fort Oglethorpe for instruction, *Capts.* H. D. STEWART, Monroe; M. A. BOWERS, Thomasville; Lieuts. G. C. BATTLE, Asheville; J. L. RAWLS, Gatesville; W. B. MEARES, Jr., Linwood; W. W. JOHNSTON, Nanteo; H. E. ROWE, Newton; W. C. THOMAS, Raeford.

To Hoboken, N. J., base hospital, from duty as aide to the governor of North Carolina, Major J. W. LONG, Greensboro.

To New Haven, Conn., for duty, Lieut. W. T. LONG, Roxboro.

Resignation of Lieut. S. R. THOMPSON, Charlotte, accepted.

North Dakota

To Camp Custer, Battle Creek, Mich., for duty, from Camp Dodge, Lieut. J. R. MACKENZIE, Carrington.

To Camp Dodge, Des Moines, Ia., for duty, from Camp Beauregard, Capt. G. V. JAMIESON, Devils Lake.

To Camp McClellan, Anniston, Ala., base hospital, from New York, Lieut. J. A. D. ENGESATHER, Brocket.

To Camp Pike, Little Rock, Ark., for duty, from Fort Douglas, Lieut. J. R. BRENCKLE, Kulm.

To Fort Des Moines, Ia., base hospital, from Camp Grant, Capt. R. D. CAMPBELL, Grand Forks.

To Fort Oglethorpe for instruction, Capt. G. P. SHEPARD, Jamestown; Lieut. J. B. TYRRELL, Underwood.

To Rochester, Minn., Mayo Clinic, for instruction, and on completion *to his proper station,* from Fort Riley, Capt. O. W. McCLUSKY, Carrington.

Ohio

To Azalea, N. C., for duty from Markleton, Capt. H. K. DUNHAM, Cincinnati.

To Camp Bowie, Fort Worth, Texas, for duty, from Western Department, Lieut. C. D. TODD, McComb.

To Camp Crane, Allentown. Pa., base hospital. from Camp *Zachary* Taylor, Lieut. G. S. MYTINGER, Portsmouth. For duty, from Camp Beauregard. Lieut. J. E. McCLELLAND, Cleveland; from Camp Sherman, Capt. J. T. MERWIN, Athens.

To Camp Custer, Battle Creek, Mich., base hospital, Lieut. G. T. MEADE, Columbus.

To Camp Forrest, Chickamauga Park, *Ga., for duty, from Fort* Oglethorpe. Capt. H. N. ERVIN, Dayton.

To Camp Gordon, Atlanta, Ga., for duty, from Camp Greene, Lieut. G. E. FLINN, Amesville.

To Camp Grant, Rockford, Ill., base hospital, Lieut. E. H. McDONALD, Bloomingburg.

To Camp Lee, Petersburg, Va., base hospital, from Army Medical School, Lieut. F. C. PAYNE, Dayton; from New York, Lieut. R. C. ASH, Ashland.

To Camp Meade, Admiral, Md., for duty, from Fort Oglethorpe, Lieut. M. MAHRER, Cleveland; W. DEERHAKE, St. Mary's. With the board examining the troops for cardiovascular diseases, from Lakewood, Lieut. J. C. MONNIER, Cleveland.

To Camp Pike, Little Rock, Ark., for duty, from Fort Logan H. Roots, Lieut. F. E. SOLIER, Bryan. To examine the command for nervous and mental diseases, from Fort Logan, Lieut. G. R. REEVE, Cleveland.

To Camp Sevier, Greenville, S. C., base hospital, Capt. W. M. AYRES, Cincinnati.

To Camp Sheridan, Montgomery, *Ala.,* base *hospital,* Lieut. *J.* J. JENNIE, Cincinnati.

To Camp Wadsworth, Spartanburg, S. C., base hospital, from Camp Sherman, Lieut. T. S. KEYSER, Springfield. For duty, from Fort Oglethorpe, Capt. W. T. GATCHELL, Ravenna; Lieut. J. C. McCLESTER, Harrisville; from Southern Department, Capt. L. H. McALLISTER, Highland.

To Camp Wheeler, Macon, *Ga.,* base hospital, from Camp Gordon, Lieut. J. J. VEGA, National Military Home.

To Fort Oglethorpe, base hospital, from Camp Wheeler, Capt. F. S. GIBSON, Cleveland; from New York City, Lieut. B. H. NICHOLS, Ravenna. For duty, from Chicago, Lieut. R. B. BOWEN, Toledo. For instruction, Capts. C. A. DIXON, Akron; E. A. MURBACH, Archbold; J. FRIDLIE, Ashland; A. H. STALL, Barberton; A. E. IBERSHOFF, H. G. SLOAN, C. B. THOMAS, Cleveland; H. J. HERRICK, Hudson; A. H. HERR, Lima; H. M. FLOWER, Toledo; Lieuts. E. B. TAYLOR, Arcadia; C. R. JOHNSON, Cambridge; C. H. CABLE, *Canton; J. S. PODESTA, Cincinnati;* W. P. LOWRY, P. M. SPURNEY, Cleveland; J. L. BUSBY, W. E. DUFFEE, J. H. VORHES, Columbus; C. M. TREFFINGER, Eaton; M. H. SCOTT, Harrison; L. A. HAYS, Johnstown; E. C. YINGLING, *Lima;* P. G. SMITH, Oxford; S. V. KENNEDY, Phalanx Station; I. P. SEILER, Piketon; R. F. WHITACRE, Prairie Depot; S. E. EAGON, Salesville; H. GRAFFE, Sandusky; J. H. RILEY, Springfield; R. B. CURL, E. G. MAY, A. J. RICHIE, G. M. WRIGHT, Toledo; W. H. STRATHMANN, West Toledo; N. N. MEYER, Youngstown.

To Fort Riley for duty, from Army Medical School, Major A. W. FREEMAN, Columbus.

To Fort Sill, Okla., for duty, Capt. S. IGLAUER, Cincinnati.

To Hoboken, N. J., for duty, from Camp Crane, Capt. A. E. SNYDER, Byron.

To New Haven, Conn., for duty, Capt. A. FALLOR, Cincinnati. Yale Army Laboratory School, for duty, Lieut. D. J. SLOSSER, Ridgeville Corners; from Fort Leavenworth, Capt. H. R. WAHL, Cleveland; from Rockefeller Institute, Lieut. R. H. MARKWITH, Columbus.

To Newport News, Va., for duty, from Fort Oglethorpe, Lieuts. D. L. REES, Cleveland; H. W. RECK, Gettysburg.

To Rochester, Minn., Mayo Clinic, for instruction, and on completion *to his proper station,* from Fort Riley, Lieut. C. F. WHARTON, Akron.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion, *to his proper station,* from Camp *Sherman.* Capt. W. C. GATES, Bucyrus.

To Washington, D. C., for consultation, and on completion *to Carlisle, Pa.*, for duty, from Camp Devens, Capt. A. C. BACHMAYER, Cincinnati. For duty, from Camp *Meade, Lieut. L. A. MITCHELL,* Newark.

Honorably discharged on account of *physical* disability exsting prior to entrance into the service, Lieuts. I. W. MATUSKA, Cleveland; J. W. CLARKE, *Vinton.*

The followng order has been revoked: *To Camp Las Cascas,* San Juan, P. R., base *hospital, from* Camp Lee, Lieut. R. A. THORNTON, Columbus.

Oklahoma

To Camp Crane, Allentown, Pa., for duty, from Camp Grant, Lieut. J. L. ROCK, Lexington; from Fort Bliss, Lieut. B. H. WATKINS, Gotebo.

To Camp Jackson, Columbia, *S. C., for duty,* from Eastern Department, Capt. J. H. STOLPER, Muskogee.

To Camp Logan, Houston, Texas, base hospital, Capt. L. M. WESTFALL, *Oklahoma.*

To Camp MacArthur, Waco, Texas, for duty, from San Antonio, Capt. S. R. EVANS, Stilwell.

To Camp Pike, Little Rock, Ark., base hospital, from Camp MacArthur, Lieut. J. W. HENRY, Oklahoma.

To Camp Wadsworth, Spartanburg, S. C., for duty, from Southern Department, Capt. G. L. HARKER, Elk City.

To Fort Logan H. Roots, Ark., base hospital, from Corpus Christi, Major F. H. CLARK, El Reno.

To Fort Oglethorpe for instruction, Capt. T. F. WOOD, Sallisaw; Lieuts. I. MULLINS, Hominy; B. HARRIS, Jenks; R. I. ALLEN, Nowata; R. A. DOUGLAS, R. W. DUNLAP, Tulsa; from Camp Greene, Capt. J. H. WHITE, Muskogee.

To Fort Riley for instruction, Capt. H. C. BROWN, Okarcha; Lieuts. P. E. WRIGHT, Albion; R. C. BAKER, Arcadia; J. T. LOWE, Blair; B. W. BAKER, Cloudchief; W. M. RIVERS, Douthat; C. O. WILLIAMS, McAlester; W. G. RAMSAY, McCurtain; F. MOSELEY, Millerton, D. D. ROBERTS, Nash; J. H. NOAH, Oilton; H. BLENDER, Okeene; J. F. KELLY, Oklahoma; A. S. SPANGLER, Pauls Valley; J. D. WINTER, Poteau; J. T. SANDLIN, Vian.

To Hoboken, N. J., base hospital, from Fort Oglethorpe, Lieut. C. C. SHAW, McAlester. For duty, from Camp Bowie, Capt. R. G. BOLEND, Oklahoma City; from Camp Crane, Lieut. H. S. DRUMMOND, Haileyville.

To Newport News, Va., for duty, from Fort Oglethorpe, Lieuts. B. G. JONES, Oklahoma City; L. H. CARLETON, Tulsa.

To report to the commanding general, Southern Department, for assignment to duty, Lieuts. I. L. GENTRY, Bonnington; T. L. ARTZ, Kiefer, R. D. LOWTHER, Norman.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. C. G. CONLEY, Frederick.

Oregon

To Camp Abraham Eustis, Lee Hall, Va., sanitary personnel, Lieut. E. J. GAMBEE, Portland.

To Camp Dodge, Des Moines, Ia., for duty, from Western Department, Lieut. F. C. HART, Portland.

To Camp Grant, Rockford, Ill., for duty, from Fort Riley, Capt. B. F. SCAIEFE, Eugene.

To Camp Kearney, Linda Vista, Calif., for duty, from Portland, Lieut. E. E. ANDERSON, Portland.

To Camp Lewis, American Lake, Wash., base hospital, Lieut. G. L. BOYDEN, Pendleton.

To Camp Logan, Houston, Tex., base hospital, from Camp Kearney, Lieut. H. J. ANDERSON, Carvallie.

To Camp MacArthur, Waco, Tex., base hospital, from Camp Kearney, Lieut. R. W. CAHILL, Portland.

To Camp Pike, Little Rock, Ark., for duty, from Western Department, Lieuts. W. E. HEDGES, Juntura.

To Fort Des Moines, Ia., base hospital, from Camp Sheridan, Lieut. B. N. WADE, Portland.

[illegible] instructor, from Fort Riley, Capt. R. R. [illegible] ills. For instruction, Lieuts. R. E. WAT- [illegible] F, Portland.

To San Francisco, Calif., for instruction, and on completeion *to his proper station*, from Camp Lewis, Capt. E. A. SOMMER, Portland.

To Letterman General Hospital, for duty, from Fort Gordon, Capt. G. MacCRACKEN, Ashland.

Pennsylvania

To Azalea, N. C., for duty, from New Haven, Capt. W. G. TURNBULL, Cresson.

To Camp A. A. Humphreys, Accotink, Va., for duty, from Eastern Department, Lieut. W. J. LYNCH, Philadelphia.

To Camp Bowie, Fort Worth, Texas, base hospital, from Camp Zachary Taylor, Lieut. H. P. PROWITT, Washington; from Fort Sam Houston, Lieut. D. M. AIKMAN, Brockwayville. For duty, from New York, Lieut. E. P. WICKERHAM, Pittsburgh.

To Camp Crane, Allentown, Pa., for duty, from Camp Dix, Lieut. F. GUILLARD, Breezewood; from Camp Hancock, Capt. T. I. O'DRAIN, Philadelphia.

To Camp Custer, Battle Creek, Mich., base hospital, Major J. D. MILLIGAN, Pittsburgh.

To Camp Dodge, Des Moines, Ia., for duty, from Fort Porter, Capt. W. S. RUCH, Carlisle.

To Camp Fremont, Palo Alto, Calif., for duty, from Camp Cody, Capt. E. E. JOHNSON, Philadelphia.

To Camp Gordon, Atlanta, Ga., base hospital, Capt. B. A. MONTGOMERY, Grove City.

To Camp Hancock, Augusta, Ga., base hospital, Capt. R. C. TORREY, Philadelphia; Lieut. L. H. STUART, Pittsburgh; from Camp Sevier, Major G. FETTEROLF, Philadelphia.

To Camp Lee, Petersburg, Va., base hospital, Capt. A. E. THOMPSON, Washington; from Fort Oglethorpe, Capt. M. E. STOVER, Pittsburgh; from Fort Screven, Capt. A. C. MORGAN, Philadelphia. For duty, from Fort Oglethorpe, Lieut. R. L. LANGDON, Philadephia.

To Camp Logan, Houston, Texas, base hospital, from Camp Beauregard, Capt. L. M. JACOBS, Philadelphia.

To Camp MacArthur, Waco, Texas, for duty, from Fort Oglethorpe, Lieut. R. J. FORD, Pittsburgh.

To Camp McClellan, Anniston, Ala., base hospital, from Lakewood, Capt. J. C. KEELER, Philadelphia.

To Camp Meade, Admiral, Md., for duty, from Army Medical School, Lieut. J. L. MESSMORE, Masontown; from Camp Dix, Lieut. R. H. KISTLER, Lansford; from Camp Upton, Lieut. H. C. KINZER, Lancaster; from Fort Oglethorpe, Lieuts. J. R. PARKER, Chester; D. E. SZABO, Dusquesne.

To Camp Pike, Little Rock, Ark., for duty, Lieut. D. I. KIRK, Pittsburgh; from Camp Gordon, Lieut. D. J. LANGTON, Philadelphia; from Camp Wheeler, Lieut. A. BERNSTEIN, Philadelphia; from Camp Zachary Taylor, Lieut. A. H. YARNALL, Pittsburgh.

To Camp Raritan, Metuchen, N. J., with the board examining the troops for cardiovascular diseases, from Lakewood, Lieut. J. L. STILEL, Pittsburgh.

To Camp Sevier, Greenville, S. C., for duty, from Southeastern Department, Capt. W. H. NIX, Indiana.

To Camp Sheridan, Montgomery, Ala., base hospital, from Camp Shelby, Lieut. W. P. NOLAN, New Kensington. With the board examining troops for tuberculosis, from Fort Benjamin Harrison, Lieut. J. H. GOLDSTEIN, Pittsburgh.

To Camp Sherman, Chillicothe, Ohio, as camp phychiatrist, from Camp Meade, Lieut. F. FRALEY, Philadelphia. Base hospital, from Camp Gordon, Major J. P. KERR, Pittsburgh.

To Camp Upton, L. I., N. Y., base hospital, Lieuts. F. G. PATTERSON, DuBois; J. W. BARR, Nanty Glo; from Walter Reed General Hospital, Lieut. E. N. HAGIN, Sharon.

To Camp Wadsworth, Spartanburg, S. C., for duty, from Camp Dix, Capt. C. F. M. LEIDY, Philadelphia; from Fort Porter, Capt. W. S. RUCH, Carlisle; from Northeastern Department, Lieuts. W. L. CRAWFORD, Dillsburg; G. A. PARKER, South Bethlehem. With the board examining the troops for cardiovascular diseases, from Lakewood, Lieut. M. FRISHMAN, Pittsburgh.

To Camp Wheeler, Macon, Ga., as division tuberculosis specialist, from Camp Jackson, Major J. W. BOYCE, Pittsburgh. As orthopedic surgeon, from Fort McPherson, Lieut. M. A. COHEN, Pittsburgh. Base hospital, from Camp Grant, Lieut. C. J. [illegible]

To Fort Logan H. Roots, Ark., base hospita [illegible] eut. F. R. WISE, York.

To Fort McHenry, Md., base hospital, from Camp Hancock, Lieut. W. L. SNYDER, Brookville; from Camp McClellan, Lieut. L. J. LEAMY, Philadelphia, from Camp Shelby, Capt. E. PAINE, Heights.

To Fort Oglethorpe for duty, from New York, Capt. W. VAN KORB, Philadelphia. For instruction, Major E. LAPLACE, Philadelphia; Capts. J. A. LYNCH, Cresson; W. R. DICKSON, W. A. LaROSS, McDonald; T. A. STEELE, McKeesport; W. L. CAMPBELL, New Castle; G. H. DENNEY, H. W. MILLER, H. M. O'REILLY, W. B. SMALL, Philadelphia; T. EVANS, Jr., A. F. B. MORRIS, Pittsburgh; W. C. SHAW, Ridgway; C. C. STANTON, Sharpsburg; J. L. GALLAGHER, Steelton; H. W. GASS, J. W. SCHOFTSTALL, Sunbury; J. H. HASLETT, Vanderbilt; Lieuts. J. K. WAGENSELLER, Bloomsburg; C. M. THOMAS, Garrick; G. A. SHUMAN, Catawissa; W. L. COLEMAN, Easton; C. C. KEMBLE, Erie; R. T. KLINE, Evans City; W. S. BELL, Greensburg; J. M. ROBBINS, Harrisburg; H. B. BUTERBAUGH, Indiana; K. A. BOWMAN, Johnstown; U. G. BICKELL, Kennett Square; L. LASHER, Kittanning; H. R. THORNTON, Lewisburg; J. A. LAFFERTY, McKees Rocks; D. N. KOONTZ, New Kensington; C. W. RICE, Northumberland; E. G. HENRY, Oil City; O. H. STROUSE, Perkasie; C. R. HAIG, W. H. OSTRUM, L. G. SMITH, Philadelphia; C. A. YOCUM, Phoenixville; W. T. BURLEIGH, J. O. DONALDSON, L. LASDAY, A. M. MILLIGAN, Pittsburgh; W. G. MOYER, J. A. WEIRBACH, Quakertown; R. J. HAWS, Reading; H. T. RYAN, Schuylkill Haven; C. R. MORSS, Scranton; G. M. B. BRADSHAW, Sugar Grove; R. C. HUGHES, Tredyffrin; F. G. SCHULER, Warren; C. E. LERCH, D. G. MOYER, Wyomissing.

To Fort Ontario, N. Y., base hospital, from Camp Dix, Lieut. M. A. BLUMER, Pittsburgh; from Fort Oglethorpe, Lieut. L. C. DRUFFNER, Avoca; from New York, Lieut. G. L. LAVERTY, Harrisburg.

To Fort Porter, N. Y., for duty, from Camp Pike, Lieut. W. W. MILLS, DuQuesne.

To Fort Sill, Okla., base hospital, from Walter Reed General Hospital, Capt. F. W. DAVIS, Scranton.

To Fort Worth, Texas, for duty, from Garden City, Capt. B. C. GILE, Philadelphia.

To Hoboken, N. J., base hospital, from Fort Oglethorpe, Capts. J. S. WINTERSTEEN, Moorestown; M. SOLIS-COHEN, Philadelphia; Lieut. F. L. ALEXAITIS, Wilkes-Barre. For duty, from Cape May, Lieut. J. H. ARNETT, Philadelphia; from Fort Oglethorpe, Lieut. S. KALLAWAY, Homestead.

To Houston, Texas, for duty, from Fort Oglethorpe, Lieut. G. B. SICKEL, Chester.

To Mineola, L. I., N. Y., for duty, from Fort Oglethorpe, Lieut. M. A. BRADFORD, Pittsburgh. For instruction, from Fort Worth, Capt. E. E. CAMPBELL, Butter.

To New Haven, Conn., for duty, Capt. J. WALSH, Philadelphia. Yale Army Laboratory School, for duty, Lieut. G. A. DAPP, Harrisburg.

To Newport News, Va., for duty, from Fort Oglethorpe, Lieut. B. B. SMITH, Philadelphia.

To Plattsburg Barracks, N. Y., for duty, from New York, Lieut. H. B. MIKELBERG, Philadelphia.

To Richmond, Va., for duty, from Newport News, Major G. C. BOUGHTON, Erie.

To Rochester, Minn., Mayo Clinic, for instruction, and on completion *to his proper station*, from Camp Sherman, Lieut. G. GINSBURG, Philadelphia.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to his proper station*, from Camp Meade, Lieut. J. H. BARTLEY, Jr., Philadelphia. On completion *to Williamsbridge, N. Y.*, for duty, from Camp Humphreys, Capt. D. F. JACKSON, Pittsburgh.

To Syracuse, N. Y., for duty, from New Haven, Capt. J. B. CRAWFORD, Pittsburgh.

To Washington, D. C., for duty, from Eastern Department, Capt. W. S. STEWART, McDonald. For duty in the Surgeon-General's Office, from Fort Oglethorpe, Lieut. S. B. PEARCE, Pittsburgh. St. Elizabeth's Hospital, for intensive training, Lieut. W. L. HAIR, Roaring Springs.

[illegible] for duty, from Lakehurst, Lieut. M. M. W[illegible]

[illegible] account of physical disability existing prior to entrance into the service, Lieuts. W. K. SHEA, P. A. TRAU, Philadelphia.

The following orders have been revoked: *To Camp Raritan*, Metuchen, N. J., with the board examining the troops for cardiovascular diseases, from Lakewood, Lieut. W. D. STROUD, Philadelphia. *To Camp Upton, L. I., N. Y.*,, for duty, from Camp Holabird, Lieut. H. S. BUSLER, Philadelphia.

Porto Rico

To Camp Las Casas, San Juan, P. R., for duty, Lieut. P. J. ZAMERA, Aquadilla; J. S. MORALES, Camupy; from Camp Dodge, Lieut. A. D. LANGIER, San Juan; from duty as a cadet, Lieut. J. LASTRA, Ponce.

To San Diego, Calif., for duty, from Mineola, Major E. I. VAUGHN, Central Aguirre.

Rhode Island

To Camp Custer, Battle Creek, Mich., for duty, from Northeastern Department, Lieut. R. METCALFE, Providence.

To Camp Devens, Ayer, Mass., base hospital, Capt. W. A. RISK, Providence.

To Camp Dodge, Des Moines, Iowa, base hospital, from Army Medical School, Capt. W. G. DWINNELL, Providence.

To Camp MacArthur, Waco, Texas, for duty, from Fort Oglethorpe, Lieut. T. S. FLYNN, Woonsocket.

To Camp Meade, Admiral, Md., base hospital, Capt. P. W. HESS, Pawtucket.

To Camp Shelby, Hattiesburg, Miss., base hospital, from Camp Sherman, Capt. H. E. BLANCHARD, Providence.

To Camp Sherman, Chillicothe, Ohio, base hospital, from Rockefeller Institute, Capt. H. C. PITTS, Providence.

To Cape May, N. J., for duty, Lieut. F. N. BIGELOW, Providence.

To Fort McHenry, Md., base hospital, from Camp Dix, Capt. J. B. FERGUSON, Providence.

To Hoboken, N. J., base hospital, from Fort Oglethorpe, Lieut. H. J. GALLAGHER, Providence.

South Carolina

To Camp Bowie, Fort Worth, Texas, base hospital, from Fort Logan H. Roots, Lieut. J. M. WALLACE, Greenville. For duty, from Western Department, Lieut. W. S. McMURRAY, Lockhart.

To Camp Crane, Allentown, Pa., for duty, from Camp Wadsworth, Lieut. M. C. SMITH, Simpsonville.

To Camp MacArthur, Waco, Texas, base hospital, from Camp Joseph E. Johnston, Lieut. J. D. VERNER, Jr., Walhalla.

To Camp Meade, Admiral, Md., for duty, from Fort Oglethorpe, Lieut. V. M. ROBERTS, Blacksburg.

To Camp Upton, L. I., N. Y., base hospital, from Camp Dix, Lieut. H. B. THOMAS, Chester.

To Camp Wadsworth, Spartanburg, S. C., for duty, from Southeastern Department, Capt. W. A. SMITH, Charleston.

To Camp Zachary Taylor, Louisville, Ky., base hospital, from Fort Logan H. Roots, Capt. J. WALLACE, Easley.

To Fort Oglethorpe for instruction, Capts. C. C. GAMBRELL, Abbeville; M. CROOK, Spartanburg; S. G. SARRATT, Union; Lieuts. J. C. MITCHELL, W. H. PRICE, Charleston; C. M. SCOTT, Darlington; H. T. BOOZER, Saluda.

To Fort Riley for instruction, Lieut. J. H. MILLS, Mayesville.

To New Haven, Conn., for duty, Capt. H. B. MALONE, Chester.

To Rochester, Minn., Mayo Clinic, for instruction, and on completion *to his proper station,* from Camp Custer, Capt. L. PETERS, Columbia.

South Dakota

To Camp Pike, Little Rock, Ark., base hospital, Capt. B. A. BOBB, Mitchell.

To Camp Wheeler, Macon, Ga., base hospital, from Camp Grant, Major J. A. MATTISON, Hot Springs.

To Fort Des Moines, Ia., base hospital, from Camp Custer, Lieut. C. N. HARRIS, Wilmot; from Camp Grant, Lieut. R. R. FISK, Brookings.

To Fort Oglethorpe for instruction, Capt. S. M. HOHF, Yaukton.

To Fort Riley for instruction, Capt. H. A. GUEFFROY, Frankfort.

The following order has been revoked: *To Camp Dodge,* Des Moines, Ia., base hospital, Capt. J. D. WHITESIDE, Aberdeen.

Tennessee

To Camp Abraham Eustis, Lee Hall, Va., for duty, from Fort Oglethorpe, Lieut. G. C. THOMAS, Greenfield.

To Camp Devens, Ayer, Mass., base hospital, from Camp Zachary Taylor, Lieut. A. D. SHARP, Murfreesboro.

To Camp Forrest, Chickamauga Park, Ga., for duty, from Eastern Department, Lieut. J. P. DELANCY, Arrington.

To Camp Lee, Petersburg, Va., base hospital, Lieuts. J. M. STEWART, Martin; C. COLLIER, Memphis; from Fort Oglethorpe, Major W. G. SOMERVILLE, Memphis.

To Camp MacArthur, Waco, Texas, base hospital, from New York, Lieut. R. E. SEMMES, Memphis.

To Camp Meade, Admiral, Md., for duty, from Fort Oglethorpe, Lieut. L. O. WILKERSON, Stanton; from the Surgeon-General's Office, Capt. L. A. STONE, Memphis.

To Camp Pike, Little Rock, Ark., for duty, from Fort Oglethorpe, Capt. H. REESE, Gallatin; from Fort Riley, Lieut. H. O. ANDERSON, Williamsport.

To Camp Wadsworth, Spartanburg, S. C., base hospital, from New York, Lieut. W. P. LAW, Westmoreland.

To Camp Wheeler, Macon, Ga., for duty, from Fort Oglethorpe, Lieut. C. T. RICHARDSON, Memphis.

To Fort Oglethorpe for instruction, Capts. S. MEEKER, Memphis; W. M. JOHNSON, Sparta; J. W. WALLACE, Watauga; Lieut. G. M. WAMPLER, South Pittsburgh.

To Fort Ontario, N. Y., base hospital, from Fort Oglethorpe, Lieut. O. N. LATEN, Memphis.

To Fort Riley for instruction, Capt. S. R. TEACHOUT, Nashville.

To Hoboken, N. J., base hospital, from Camp Crane, Capt. J. H. McSWAIN, Paris.

To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieut. C. L. DAVIDSON, Lexington.

Honorably discharged, Lieut. L. M. DYKES, Johnson City.

The following order has been revoked: *To Camp Upton, L. I., N. Y.,* for duty, from Camp Meigs, Lieut. W. V. PRUETT, Brownsville.

Texas

To Camp A. A. Humphreys, Accotink, Va., for duty, from Eastern Department, Lieut. R. ATKINSON, Pleasanton.

To Camp Beauregard, Alexandria, La., for duty, from Camp Travis, Lieut. D. W. CARTER, Jr., Georgetown; from Southern Department, Major T. E. PENROSE, Marathon.

To Camp Bowie, Fort Worth, Texas, base hospital, from Camp MacArthur, Capt. R. D. GIST, Amarillo. For duty, from Southern Department, Capts. T. R. BURNETT, Carrollton; F. F. FOWLER, Round Rock.

To Camp Dix, Wrightstown, N. J., as orthopedic surgeon, from Walter Reed General Hospital, Lieut. C. F. FOWLER, Austin.

To Camp Dodge, Des Moines, Ia., for duty, from Central Department, Major C. R. BYARS, Brownsville.

To Camp Forrest, Chickamauga Park, Ga., for duty, from Fort Oglethorpe, Capt. D. E. MONROE, Cameron.

To Camp Las Casas, San Juan, Porto Rico, base hospital, from Fort McPherson, Lieut. E. L. LAWRENCE, Thorndale.

To Camp Meade, Admiral, Md., for duty, from Fort Oglethorpe, Capt. J. S. MICHAEL, Lieuts. A. J. MYNATT, Houston; J. R. MURCHISON, Marshall; from Lakewood, Lieut. H. D. WHITTINGTON, Eastland.

To Camp Pike, Little Rock, Ark., base hospital, Lieut. H. D. HARLAN, Beaumont.

To Camp Sherman, Chillicothe, Ohio, base hospital, from Camp Dodge, Lieut. L. B. KLINE, Houston.

To Camp Upton, L. I., N. Y., base hospital, from Fort McHenry, Lieut. W. R. JOHNSON, Snyder. For duty, from Camp MacArthur, Major S. NORMAN, Texas City.

To Camp Wadsworth, Spartanburg, S. C., for duty, from Camp Greene, Capt. F. D. SHEPHERD, Byers.

To Corpus Christi, Texas, for duty, Lieuts. T. W. GRACE, El Paso; J. D. CARROLL, Uvolde.

To Fort Des Moines, Ia., base hospital, from Camp Shelby, Capt. H. H. OGILVIE. San Antonio.

To Fort McHenry, Md., base hospital, from Camp Devens, Lieut. M. O. REA, Pottsville.

To Fort Oglethorpe for instruction, Capts. J. M. F. GILL, Austin; J. A. HARDY, El Paso; R. F. SAUNDERS, I. A. WITHERS, Fort Worth; A. P. HOWARD, Houston; Lieuts. A. H. GALLOWAY, Laneville; E. D. RICE, Tyler; H. E. HOKE, Waco; W. C. TENERY, Waxahachie; from Camp Bowie, Lieut. E. W. JONES, Wellington; from Camp Logan, Capt. W. P. BARTON, Overton; from duty as a private, Lieut. W. L. ASKEW, Amarillo.

To Fort Riley for instruction, Lieuts. P. C. PLUENNEKE, Cranfills Gap; E. K. ARMISTEAD, El Paso; L. C. BARRETT, Garner; J. B. KNIGHT, Meridian; J. H. McCOY, Tahoka; S. J. PATE, Woodville.

To Fort Sam Houston, Texas, base hospital, Capt. S. J. WILSON, Fort Worth.

To Fort Worth, Texas, for duty, Lieut. J. W. ELLIS, Lampasas; from Fort McIntosh, Lieut. W. H. COOLEY, Santo.

To Hoboken, N. J., base hospital, from Camp Crane, Lieut. J. W. BALKE, Rosenberg; from Cape May, Lieut. J. E. QUAY, Waco.

To New Haven, Conn., for duty, from Camp MacArthur, Lieut. A. J. STREIT, Marlin. Yale Army Laboratory School, for duty, from Fort Leavenworth, Capt. W. F. THOMSON, Beaumont. For instruction, Lieuts. J. D. MARTIN, Call; C. N. HENDRY, Galveston.

To Newport News, Va., for duty, from Camp Wadsworth, Lieut. R. L. DINWIDDLE, San Antonio.

To Princeton, N. Y., Princeton University, for duty, Capt. F. E. PRESTLEY, Galveston.

To Washington Barracks, Washington, D. C., for duty, from Army Medical School, Lieut. E. D. MILLS, Galveston.

To Waynesville, N. C., for observation and treatment, from Arcadia, Lieut. J. W. REID, Maysfield.

To report to the commanding general, Southern Department, for assignment to duty, Lieut. J. L. BORDEN, Victoria.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to his proper station,* from Camp Greene, Lieut. C. C. CLEVELAND, Hamilton.

The following order has been revoked: *To Fort Oglethorpe* for instruction, from Washington, Lieut. J. W. GOODE, San Antonio.

Utah

To Camp Custer, Battle Creek, Mich., for duty, from Central Department, Capt. R. T. MERRILL, Smithfield.

To Camp Fremont, Palo Alto, Calif., base hospital, Capt. A. R. IRVINE, Salt Lake City.

To Fort Douglas, Utah, for duty, from Western Department, Capt. G. C. EMERY, Holliday.

To Fort Oglethorpe for instruction, Lieut. G. J. FIELD, Salt Lake City.

To Fort Riley for instruction, Lieuts. C. E. HENNEBERGER, Bingham Canyon; E. A. WEYMULLER, Geneva; B. C. MacNEIL, White Rocks.

Vermont

To Camp Crane, Allentown, Pa., for duty, from Camp Gordon, Lieut. J. P. TIERNEY, St. Johnsbury.

To Camp Devens, Ayer, Mass., base hospital, Capt. O. V. HEFFLON, Wardsboro.

To Fort McPherson, Ga., for duty, from Camp Kearney, Capt. S. M. BUNKER, Burlington.

To Fort Oglethorpe for instruction, Capt. J. W. COURTNEY, Burlington; Lieut. E. N. BIBBY, Craftsbury.

To New Haven, Conn., Yale Army Laboratory School, for instruction, Capt. G. H. PARMENTER, Montpelier; from Fort Leavenworth, Lieut. A. L. FOGG, Underhill.

Virginia

To Camp Abraham Eustis, Lee Hall, Va., camp hospital, from Camp Lee, Major P. C. RILEY, Markham.

To Camp Custer, Battle Creek, Mich., for duty, from Mineola, Major H. C. Mallory, Greenbackville.

To Camp Forrest, Chickamauga Park, Ga., for duty, from Eastern Department, Capt. H. J. HAGAN, Roanoke.

To Camp Pike, Little Rock, Ark., for duty, from Camp Logan, Lieut. E. M. HICKS, Roanoke.

To Fort McHenry, Md., base hospital, from Camp Greene, Lieut. J. O. MUNDY, Jr., Raccoon Ford.

To Fort Oglethorpe for instruction, Capt. A. L. WILSON, Lynchburg; Lieuts. C. J. DEVINE, Lexington; E. P. KENNEDY, Richmond; R. R. NEVITTE, Temperanceville.

To Fort Ontario, N. Y., base hospital, from Fort Oglethorpe, Lieut. R. G. WIATT, Richmond.

To Hampton, Va., for duty, from Fort Worth, Major A. G. COUMBE, Vienna.

To Hoboken, N. J., base hospital, from Fort Oglethorpe, Lieut. P. E. TUCKER, Buckingham.

To Memphis, Tenn., Park Field, for duty, from Camp Sevier, Capt. S. E. BROWN, Norfolk.

To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieut. C. H. IDEN, Berryville.

To Philadelphia, Pa., for duty, from Northwestern Department, Capt. J. W. H. POLLARD, Lexington.

To Syracuse, N. Y., as orthopedic surgeon, from Camp Pike, Capt. H. FLETCHER, Fairfax.

To Waynesville, N. C., for duty, from New Haven, Lieut. J. L. STRINGFELLOW, Norfolk.

Washington

To Camp Abraham Eustis, Lee Hall, Va., sanitary personnel, Capt. F. H. COLLINS, Goldendale.

To Camp Bowie, Fort Worth, Tex., for duty, from Western Department, Capt. J. A. MAPES, Seattle.

To Camp Crane, Allentown, Pa., for duty, from Camp Lewis, Lieut. H. D. JONES, Tacoma.

To Camp Dodge, Des Moines, Ia., for duty, from Fort Thomas, Major R. W. NEWTON, Fort George Wright.

To Camp Harry L. Jones, Douglas, Ariz., for duty, from Portland, Ore., Lieuts. J. HIETT, Metaline Falls; C. Y. LAPIDENSKY, Seattle.

To Camp Lewis, American Lake, Wash., base hospital, Capts. J. R. BOOTH, A. JORDAN, Seattle; Lieuts. W. L. JACKSON, Burlington; J. L. HARRIS, Pullman; A. W. WISE, Wellpinit. For duty, from Western Department, Lieut. C. E. MONTGOMERY, Walla Walla.

To Camp Logan, Houston, Tex., base hospital, from Camp Cody, Capt. R. T. BURKE, North Bend.

To Camp MacArthur, Waco, Tex., for duty, from Western Department, Capts. W. H. PAYNE, Fort Worden; A. E. HENRY, Seattle N. E. ROBERTS, Olympia; H. W. SHRYOCK, Sumas; C. C. WILCOX, Vancouver.

To Camp Travis, Fort Sam Houston, Tex., for duty, from Fort Riley, Lieut. F. W. WICHMAN, Tenino.

To Camp Wheeler, Macon, Ga., base hospital, from Fort Monroe, Capt. H. G. WILLARD, Tacoma.

To Fort Des Moines, Iowa, base hospital, *from* Camp Lewis, Capt. E. C. WHEELER, Tacoma.

To Fort Ontario, N. Y., base hospital, from Camp Lewis, Capt. A. H PEACOCK, Seattle; from Jefferson Barracks, Lieut G. I. HURLEY, Hoquiam.

To Fort Riley for instruction, Capts. F. M. CROSBY, Kennewick; C. E. KEELER, Yakima; Lieut. C. E. GREASON, Skykomish.

To Newport News, Va., for duty, from Waynesville, Capt. K. WINSLOW, Seattle.

To Rochester, Minn., Mayo Clinic, for instruction, and on completion *to his proper station,* from Camp Custer, Capt. J. M. HENDERSON, Seattle.

To San Francisco, Calif., Letterman General Hospital, for duty, Capts. E. E. BECKETT, F. N. CHESSMAN, Seattle.

To Williamsbridge, N. Y., for observation and treatment from Hoboken, Lieut. W. J. BOONE, North Yakima.

Honorably discharged on account of physical disability incurred in line of duty, Capt. F. L. WOOD, Lynden.

West Virginia

To Camp Gordon, Atlanta, Ga., base hospital, from Fort McPherson, Lieut. C. M. TRUSCHEL, Wheeling.

To Camp Lee, Petersburg, Va., base hospital, Capt. B. L. TRAYNHAM, Sweet Springs.

To Camp Logan, Houston, Tex., base hospital, from From Fort Riley, Capt. O. D. BARKER, Parkersburg.

To Camp Meigs, Washington, D. C., for duty, Capt. C. N. BROWN, Elizabeth.

To Camp Pike, Little Rock, Ark., for duty, from Camp Shelby, Capt. L. P. JONES, Pennsboro; from Fort Oglethorpe, Capt. E. McELFRESH, Point Pleasant.

To Camp Sheridan, Montgomery, Ala., base hospital, from Camp Shelby, Lieut, G. C. PATTON, Harrisville.

To Camp Wadsworth, Spartanburg, S. C., for duty, from Fort Oglethorpe, Lieut. I. M. DEER, Henford.

To Fort Oglethorpe for instruction, Capt. P. W. McCLUNG, Elizabeth; Lieuts. T. L. HARRIS, Parkersburg; H. A. WHISLER, Wallace; A. L. COYLE, C. J. RYAN, Wheeling; from Camp McClellan, Capt. W. W. ORR, Worthington.

To Fort Screven, Ga., for temporary duty, Lieut. H. B. COPELAND, Wheeling.

To report to the commanding general, base hospital, Southern Department, from Camp Travis, Lieut. T. E. VASS, Bluefield.

Wisconsin

To Army Medical School for instruction, and on completion *to Fort Oglethorpe,* from Chicago, Capt. E. L. BOLTON, Chilton.

To Camp Devens, Ayer, Mass., base hospital, from Camp Custer, Capt. G. SENN, Green Bay; from Camp Sherman, Capt. S. W. DOOLITTLE, Lancaster.

To Camp Dodge, Des Moines, Iowa, for duty, from Fort Brady, Capt. G. R. RANDALL, Milwaukee.

To Camp Grant, Rockford, Ill., base hospital, Lieuts. J. T. KLEIN, H. J. KUHN, Milwaukee. For duty, from Fort Riley, Lieut. E. N. PFEFFER, Milwaukee.

To Camp Lee, Petersburg, Va., with the board examining the troops for cardiovascular diseases, from Lakewood, Lieut. E. S. GATTERDAM, La Crosse.

To Camp MacArthur, Waco, Tex., for duty, *from Fort Oglethorpe,* Lieut. C. M. SONNENBURG, Sheboygan.

To Camp Meade, Admiral, Md., base hospital, from New York, Lieut. C. C. BIRKELO, *Rosholt.*

To Camp Pike, Little Rock, Ark., for duty, Capt. A. L. C. BORCHARDT, New London; from Camp Zachary Taylor, Lieut. C. B. HAKE, Milwaukee.

To Fort *McHenry, Md.,* base hospital, from Camp Dix, Lieut E. R. F. MURPHY, Antigo.

To Fort Oglethorpe, as instructors, from Fort Riley, Capt. F. J. WOODHEAD, Merton; Lieut. E. I. MOQUIN, Fairwater. For instruction, Capt. J. W. POWERS, Burlington; Lieuts. E. K. THOMPSON, Cudahy; from duty as a private, Lieut. A. C. NUGENT, Milwaukee.

To Fort Ontario, N. Y., base hospital, from New York, Lieut. T. F. LAUGHLIN, Winneconne.

To Fort Riley for instruction, Lieuts. R. L. MacCORMACK, Alma Center; J. M. MECUM, Bagley; J. E. TWOHIG, Fond du Lac; J. ROSHOLT, LaCrosse; P. M. ROSS, E. A. SCHOLTER, W. A. SICKELS, Milwaukee.

To New Haven, Conn., Yale Army Laborataory School, for duty, Lieut. F. M. HARRIS, Fond du Lac.

To Newport News, Va., for duty, from Camp Wadsworth, Lieut. E. G. LINKMAN, Milwaukee; from Fort Oglethorpe, Lieut. G. G. WALLCHLAEGER, Milwaukee.

To report to the commanding general, Central Department, for assignment to duty, Capts. E. J. PHELPS, Elderon; F. WALTERS, Stevens Point; W. E. GROUND, Superior.

To Rochester, Minn., Mayo Clinic, for instruction, and on completion *to Jefferson Barracks,* Lieut. F. H. RUSSELL, Neenah.

To Rockefeller Institute for instruction in laboratory work, and on completion *to Army Medical School,* for duty, Capt. F. A. McJUNKIN, Milwaukee. For instruction in the treatment of infected wounds, and on completion *to his proper station,* from Camp Dix, Lieut. T. C. H. ABELMANN, Watertown.

The following order has been revoked: *To Washington, D. C.,* American University, *for* duty, from Fort Oglethorpe, Lieut. O. W. C. MAERCKLEIN, Wanwatose.

Wyoming

To Camp Dodge, Des Moines, Iowa, for duty, from Western Department, Lieut. N. C. GEIS, Casper.

To Camp Sevier, Greenville, S. C., base hospital, from New York, Lieut. A. H. BENSON, Sheridan.

To Fort Riley for instruction, Lieut. J. D. LEWELLEN, Powell.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest; such as relate to society activities, new hospitals, education, public health, etc.)

CALIFORNIA

Personal.—Dr. Richard S. Anthony, Los Gatos, has been appointed for the medical staff of the Red Chevron Society, an organization to identify all men unable to enter active service and to hold them during the period of the war in organization to render to the country whatever assistance they may be able to render as volunteers.——Dr. Arthur Hieronymus, city physician and head of the health department of Alameda, was operated on at the Alameda Sanitarium, July 28, and is reported to be doing well.

New Tuberculosis Hospital.—A new hospital for diseases of the lungs has just been completed on a site overlooking the Mission Valley, near San Diego, at a cost of $35,000. The institution will house forty-eight patients. While the building was started with $24,000 bequeathed by Mr. Vauclain, to be used for tent houses for consumptives, the trustees and the county supervisor contend that the purpose of the giver would best be served by turning over the fund to the County Tuberculosis Hospital building. On account of the conflict of opinion between the Anti-Tuberculosis Society and the county supervisor, this matter will be settled by the decision of the judge of the superior court.

ILLINOIS

Typhoid Fever.—One hundred and thirty-five cases of typhoid fever have been reported in Moline.

Infantile Paralysis.—The second case of infantile paralysis in Edwardsville this year was reported, July 28.

Personal.—At the international convention of the Catholic Order of Foresters, held in Duluth, July 29, Dr. Joseph P. Smyth, Chicago, was elected high medical examiner.——Dr. Henry I. Wilson, Oak Forest, has been appointed health officer of Racine.

Farewell to Medical Officers.—The Sangamon County Medical Society gave a farewell dinner at the Sangamon Club, July 29, in honor of Drs. John F. Deal, A. G. Aschauer, Charles L. Colby and Charles L. Patton, who have accepted commissions in the Medical Reserve Corps, U. S. Army, and have been ordered to active duty. Each of the guests of honor was presented with a remembrance from the society. The presentation speeches were made by Drs. George N. Kreider, Lewis C. Taylor and Frank P. Norbury, all of Springfield.

Chicago

McArthur Unit Safely Landed.—The Base Hospital Unit No. 14, St. Luke's Unit, was announced, August 2, to have been safely landed in Europe. Capt. Lawrence H. Mayers, M. R. C., U. S. Army, is director of the unit.

IOWA

Medical Student Drowned.—John L. Cannon, a senior medical student in the State University of Iowa, Iowa City, was drowned in the Cedar River, near the lower Palisades, July 28.

Personal.—Dr. Edward C. Rosenow, who went from his home in Rochester, Minn., to Dubuque, in response to the appeal at the time of the outbreak of infantile paralysis in the latter city, returned home, July 25.——Dr. Fred J. Jarvis, Oskaloosa, suffered the fracture of a collar bone and other injuries in an automobile accident near Fremont.

Quarantine Lifted at Dubuque.—August 3, the quarantine that was placed on Dubuque a month before on account of the prevalence of infantile paralysis was raised by the state board of health. No new cases have been reported, and the number of recoveries is steadily increasing.——Out of seventy-one cases of paralysis reported to the state board of health up to July 22, there have been only nine deaths.

LOUISIANA

Personal.—Dr. Jerome E. Landry has been appointed house surgeon of the Charity Hospital, New Orleans, succeeding Dr. Hiram W. Kostmayer, resigned to accept a position with the Illinois Central Hospital.

New District Officers.—At the annual meeting of the Fifth District Medical Society held in Monroe, the following officers were elected: president, Dr. James B. Vaughan, Collinston; vice presidents, Drs. Irby B. May, Columbia; Oliver H. Thompson, Marion, and Victor F. Carey, Downsville, and secretary-treasurer, Dr. James Q. Graves, Monroe.

MARYLAND

Personal.—Dr. Howard Bratton, Elkton, has been elected vice president of the Association of Medical Societies of the Eastern Shores of Maryland, Virginia and Delaware.

MINNESOTA

Trachoma in Itasca County.—As the result of a trachoma investigation recently made by federal government officials, and the state health authorities in Itasca County, thirty-eight cases have been found; seven in white people and thirty-one in Indians.

Guilty of Espionage.—"Dr." Christian P. Neumann, Princeton, is said to have been found guilty on three counts of violation of the espionage act and to have been sentenced by Judge Page Morris to four years imprisonment in the Leavenworth Penitentiary.

Personal.—Dr. Pearl M. Hall, formerly health commissioner of Minneapolis, was formally installed as superintendent of the State Tuberculosis Sanatorium, Walker, July 30 and 31.——Dr. Carl J. Holman has been appointed health commissioner of Mankato, succeeding Dr. Austin V. Denman, who has resigned to enter the military service.——Dr. Herbert O. Collins, for nine years superintendent of the Minneapolis City Hospital, has accepted the superintendency of the Winnipeg General Hospital, and will assume charge, September 1. Dr. Harry A. Britton has been appointed acting superintendent of the Minneapolis City Hospital, succeeding Dr. Collins.

MISSOURI

New Health Publication.—St. Joseph Health Department has begun the publication of a monthly bulletin for distribution among the citizens to inform the people about health conditions. Dr. Hasbrouck De Lamater, city health officer, will edit the publication.

Physician Fined.—Dr. W. D. Smith, Kansas City, who was arrested on the charge of the illegal sale of narcotics, is said to have been fined $500, July 29, by Justice Charles H. H. Clark. Seven men and three women drug addicts who were arrested and held as witnesses against Dr. Smith were fined $50 each and sent to the General Hospital.

Health Association Officers.—At the meeting for organization of the Missouri State Health Association in St. Louis, July 22, Dr. Hasbrouck De Lamater, St. Joseph, was elected president; Dr. George H. Jones, Jefferson City, secretary of the state board of health, secretary, and Drs. E. H. Bullock, Kansas City, and C. A. Jones, St. Louis, and Messrs. E. H. Smith, Springfield; Robert B. Tyler, Joplin, and Frank L. McCormick, Moberly, directors.

Personal.—Dr. Arthur R. McComas, Sturgeon, councilor of the ninth district has been called into active service as captain, M. R. C., U. S. Army. July 11, a farewell dinner was given Captain McComas.——Dr. Franklin E. Murphy, Kansas City, councilor of the thirteenth district, has been appointed chairman of the judicial council and the executive committee of the Missouri State Medical Association to fill the vacancy caused by Dr. McComas being called into active service.

State Health Board Appointments.—Governor Gardner has appointed Dr. Andrew W. McAlester of Columbia a member of the state board of health to take the place of Dr. Joseph W. Ferguson, St. Joseph, who has joined the Medical Reserve Corps, U. S. Army. The governor also reappointed Dr. Emmett P. North of St. Louis, Dr. Thomas A. Son of Bonne Terre, Dr. T. Hurley Wilcoxen of Bowling Green, whose terms expired, July 1. The other members of the board are: Drs. William A. Clark, Jefferson City; Tolman W. Cotton, VanBuren and George H. Jones, Jefferson City, secretary of the board.

NEBRASKA

Personal.—Drs. Francis and Emma Boose Tucker, Falls City, have arrived from Tehchow Tung, China, where they have been for seven years as medical missionaries.——Dr. Clarence B. Foltz has resigned as police surgeon of Omaha.

NEW YORK

New York City

More Ambulances for Women's Service.—The National League for Women's Service which is assisting the Surgeon-General in the removal of wounded men from the transports to the hospitals has been presented with four additional ambulances, valued at $10,250, and funds for their maintenance for one year by the Cloak and Suit Trade. This makes eight ambulances now being operated by the motor corps of the league.

Women Doctors Need Help.—Dr. Barbara Hunt, Bangor, Me., director of the Women's Hospital No. 1 in France, has cabled that there is urgent need for women physicians in connection with the work of that hospital. The hospital has twenty-five beds for military patients and twenty-five beds for civilian patients, and is establishing dispensaries in nearby towns and villages. In this enterprise it is working in cooperation with the American Committee for Devastated France.

Red Cross Chapter Needs Physicians.—The New York Chapter of the American Red Cross has asked for additional physicians to offer their services in connection with the work performed by the Red Cross in providing medical attention to the families of soldiers and sailors. The number of such cases being treated each month has been steadily increasing, and the number of physicians offering their services has been decreasing. The need for additional physicians for this work is urgent.

Club for Red Cross Nurses.—The New York Chapter of the American Red Cross is fitting up a club house at 129 East Nineteenth Street, Manhattan, for the accommodation of nurses passing through the city on their way to the front. The house will be ready to receive guests about September 1. At first there will be accommodations for only twelve nurses, but provision will soon be made for a larger number. This house was called for by Col. James M. Kennedy of the Medical Corps, who is surgeon of the embarkation service of the port of New York.

Personal.—Dr. Lucius P. Brown, who, following an investigation of the health department by the Hylan administration, was tried on charges of neglect of duty and acquitted, has been unanimously reinstated as director of the bureau of foods and drugs of the New York Health Department.——Dr. Timothy D. Lehane, who for fifteen years was a coroner's physician, has been appointed police surgeon for the thirteenth and fourteenth districts.——Dr. Samuel P. Swetnick, Brooklyn, while bathing at Rockaway Beach, August 2, was carried out by a strong undertow and narrowly escaped drowning.——Dr. Patrick J. Murray has been appointed chief surgeon of the police department of Brooklyn, succeeding Dr. Edwin E. Higgins, who has resigned to enter the military service.

OHIO

Sellenings Goes to Italy.—Dr. Oscar H. Sellenings, Columbus, who was recently placed in charge of the work of the American Red Cross for the children of Marseilles, France, has been made head of the temporary commission sent by the American Red Cross to Italy.

New Hospital to Help in Tuberculosis Fight.—Ohio's seventh district tuberculosis hospital has been provided for by action of the commissioners of Wood, Hancock, Seneca and Crawford counties, appropriating $100,000 jointly for the establishment of such an institution, the state department of health announced recently. The site for the hospital will be chosen later. Five district hospitals are now in operation and provision for a sixth one has been made by Ottawa, Sandusky, Erie and Lorain counties. There are three county hospitals, established under previous laws, and two municipal institutions. In all these institutions provide for thirty-five of the eighty-eight counties.

More Efficient Reports of Venereal Disease.—The former regulations for the reporting of venereal disease in effect prior to July 1, were less than 3 per cent efficient. As a result of the new regulations a great increase in reported cases is expected. If the ratio which prevails throughout the United States prevailed in Ohio, there were about 375,000 cases of venereal disease during these three years, 1915-1917, yet during these three years less than 8,500 cases were reported.

"The old regulations, which did not require the name or the source of infection, were valuable only for the compilation of statistics. The new regulations, now in effect, provide a practical means of obtaining detailed information as to venereal disease prevalence and as to vice conditions, which will be immediately useful in obtaining the control over these diseases which is just now such a necessary military measure."

Cincinnati

New Board of Health.—Mayor Galvin reappointed, as members of the Cincinnati Board of Health, July 21, Dr. George A. Fackler for a term of ten years; Dr. E. Gustav Zinke for eight years; Samuel Prost for six years; Dr. Edward W. Walker for four years, and A. Clifford Shinkel for two years. Of these appointees, Drs. Fackler, Walker and Mr. Shinkel were originally appointed in 1908. Dr. John H. Landis, now health officer of Cincinnati, was a fourth member of the original board.

Personal—Health Officer Dr. John H. Landis, who has been critically ill at Christ Hospital, is reported to be convalescent.——Capt. H. Kennon Dunham, M. R. C., U. S. Army, on duty at the U. S. Hospital No. 17, Markleton, Pa., suffered a fracture of the leg and other injuries when his automobile overturned near Frostburg, Md., recently.——Dr. William H. Peters has been made acting health officer of Cincinnati, pending the recovery of Dr. Landis.——Drs. James W. Rowe and Samuel Iglauer have been granted leaves of absence from the staff of the Cincinnati General Hospital for the period of the war.

PENNSYLVANIA

Personal.—Dr. David Nathan, Norristown, has been commissioned captain in the Canadian Army Medical Corps.——Dr. James C. Lyons, Chester, is under treatment in the Jefferson Hospital, Philadelphia.

Philadelphia

Personal.—Drs. Florence and Dorothy Child are caring for French children at the hospital at Evian.

A New Course for Doctors' Aids.—A new course for technicians under the direct supervision of Dr. Courtland Y. White, city bacteriologist and pathologist to the Episcopal Hospital and the Philadelphia Hospital for Contagious Diseases, will be opened September 4. The course will be conducted at the institutions with which Dr. White is connected. The course is open to women, but a high school education or its equivalent is required. Among the things which they study are examination of material from wounds and various other secretions for diagnosis; the preparation of culture mediums, serums and antitoxin; the study of bacteria, and the preparation and sectioning of pathologic tissue. Six hours a day for five days a week are required at the hospital. The department of public health charities through the Pennsylvania Department of the Council of National Defense offers the course.

TEXAS

Allowance for Antimalarial Work.—Dr. James G. Townsend, U. S. P. H. S., Fort Worth, has been informed that the government will allow an additional $8,000 for antimalarial work in this zone.

State Leper Colony.—It is announced that the State Leper Colony may be located on the Guadalupe River, about 22 miles northwest of New Braunfels, Comal County. The abstract of the title of 333 acres of land has been submitted to the attorney-general by Dr. William B. Collins, Austin, the tract having been offered to the state for a leper colony.

Personal.—The mayor of Houston has appointed Surg. John M. Holt, U. S. P. H. S., city health officer for the period of the war with the approval of the Surgeon-General. Surgeon Holt's proper station is Cleveland.——Dr. Thomas B. Fisher, Dallas, has been appointed medical director of the Great Southern Life Insurance Company, succeeding Dr. John H. Florence, Houston, resigned; Dr. William E. Crow, Dallas, has been made assistant medical director.——A public health committee has been appointed for Belle County with Dr. John S. McCelvey, Temple, chairman, and Dr. Taylor Hudson, Belton, vice chairman. Drs. Ace H. Alsup, Little River, Olin F. Gober, Temple, and W. M. W. Splawn, Belton, are the other members of the committee, which will have charge of all matters relative to public health conservation.

WISCONSIN

Endowment Fund for Marquette.—The latest report indicates that Marquette University has raised $450,448 toward the $1,000,000 endowment fund for its medical school, leaving $216,000 still to be raised. The university is to raise two thirds of a million to receive the other one third which was offered by the Carnegie Foundation for the Advancement of Teaching.

CANADA

Pensions.—Up to and including May 31, 1918, the Canadian Pensions' Board had awarded 34,879 pensions, and 3,013 gratuities. The average number of pensions awarded daily is about 120. In some months over 3,000 have been issued.

Sanitary Inspectors Meet.—At the annual meeting of the Sanitary Inspectors Association of Western Canada, held in Winnipeg, July 19, Arthur Rigby, Winnipeg, was elected president; W. E. Stanley, Fort Williams, vice president for Western Ontario; D. Little, Winnipeg, for Manitoba; H. D. Mathias, Regina, for Saskatchewan; J. J. Dunn, Calgary, for Alberta, and F. S. Degray, Victoria, for British Columbia. Alexander Officer, Winnipeg, was reelected secretary-treasurer. The headquarters of the association will remain in Winnipeg.

Unit Medical Directors.—Canada has been divided into territorial units for the purpose of carrying out the work of the Invalided Soldiers' Commission. The director of the medical services, Lieut.-Col. F. McKelvey Bell, Ottawa, has appointed the following assistant medical directors: Maritime Provinces, Major Dugald Stewart, Bridgewater, N. S.; Ontario, Capt. Edward Ryan, Kingston, Ont.; Manitoba, Major Norman K. McIvor, Winnipeg, Man.; Saskatchewan, Capt. W. C. Arnold; Alberta, Major D. R. Johnson, and British Columbia, Major Arthur P. Proctor, Vancouver, B. C.

Amendment to License Act.—The Province of Ontario has recently amended its license act by granting wider powers to licensing boards in the control of preparations containing alcohol, including "patent medicines." Under this amendment license boards may submit samples of such preparations to the Provincial Board of Health for analysis and if that board finds that the medical ingredients are not sufficient to prevent the preparation from being consumed for the alcohol contained in them, their sale may be forbidden. All the well known "patent medicines" containing alcohol in any considerable proportion will be submitted for analysis.

Advance in Pay for Medical Officers.—Advice received from Ottawa states that the following rates of pay have been approved for professionally qualified officers of the Army Medical Corps, Canadian E. F., serving either in Canada or overseas. Colonel, $8 a day; lieutenant-colonel, $7; major, $5.50; captain, $4; lieutenant, $2; and in addition an officer of the Army Medical Corps will receive a field allowance at the same rate as in other branches of the service, and officers in command of any hospital or institution, in which the number of personnel employed together with the number of patients equals or exceeds 500, will receive command pay at the rate of $1 a day.

Personal.—Dr. Joseph A. Mathieu has recently returned from Europe and has located in Regina, Sask.——Major Ernest H. Young, Kingston, formerly in the insane hospital service in Ontario, but who has been overseas for two years, has returned to Canada, and has been appointed to take command of the Ontario Military Hospital at Coburg, Ont.——Dr. L. De Lotbiniere Harwood, Montreal, has been elected dean of the medical faculty of Laval University, Montreal, to succeed the late Dr. Emmanuel P. Lachapelle.——The Hon. Dr. Henri S. Beland, after serving three years in Germany as prisoner of war, has arrived home in Canada. It is his intention to return to the front in a medical capacity.——Capt. Morley E. Gorman, Postville, Ont., has been awarded the Military Cross.——Capt. Thomas Morrison, C. A. M. C., Hamilton, Ont., returned from overseas; has been appointed assistant director of medical services at Niagara Camp, Ontario.——Major Cluney MacPherson, St. Johns, director of military services in the Newfoundland Militia Department, has been made a C.M.G.——Dr. James C. Watt has been appointed an associate professor of anatomy at the University of Toronto, and Dr. W. G. Smith an associate in psychology.——Lieut.-Col. P. Walter H. McKeown, Toronto, who is now overseas, has been made a colonel, and is in command of the Kitchener Hospital, Brighton, England.——Dr. Duncan A. Carmichael, Oshawa, Ont., assistant superintendent of the Calydor Sanatorium, Gravenhurst, Ont., has accepted the superintendency of the Jordan Memorial Sanatorium, New Brunswick, succeeding Dr. David Townsend, River Glade, N. B.——Major John G. Fitzgerald of the provincial health laboratories, Toronto, is now acting as a pathologist in France.——Capt. Henry Crassweller, Windsor, Ont., in the R. A. M. C., is reported missing.

GENERAL

Tri-State Society Meeting.—The third annual meeting of the Tri-State Medical Society will be held in Madison, Wis., August 19 to 22. Dr. William P. Peck, Madison, is president of the association.

Missouri Valley Society to Meet.—The thirty-first annual meeting of the Medical Society of Missouri Valley will be held in the Fontenelle Hotel, Omaha, September 19 and 20, under the presidency of Dr. Artemas I. MacKinnon, Lincoln.

Bequests and Donations.—The following bequests and Donations have recently been announced:

Anti-Tuberculosis League of Cincinnati, $2,257.47; Associated Charities, $2,000; Hospital Social Service, $150; Children's Clinic, $600, and Visiting Nurses' Association, $500, by the distribution of funds of the budget committee of the Council of Social Agencies of Cincinnati.

Marquette Medical Dispensary, Milwaukee, Wis., $33,000 by the will of Miss Helen Cudahy.

National Dental Association.—The twenty-second annual session of this association was held at the Auditorium Hotel, Chicago, Aug. 5-9, 1918.

At the first general meeting there was a symposium on the management of pulpless teeth, and up-to-date information was furnished on infections within the roots and periapical tissues. The relative and actual efficiency of medicaments for the sterilization of tooth structures was reviewed, and a report made on the efficiency of current methods employed for the sterilization of dental instruments and root filling materials. Laboratory investigations on the physical properties of root filling materials and the efficiency of root filling for blocking infection from sterile tooth structures were presented, and clinical data with reference to the efficiency of various root filling methods was furnished.

At the second general meeting the president, Col. W. H. G. Logan, discussed the dental profession's contribution to the present war. Major-Gen. William C. Gorgas delivered an address in which he pointed out some of the important changes that have been made in the Medical Department of the United States Army during the past four years. Brig.-Gen. Robert E. Noble followed with remarks on the plans of the Surgeon-General of the Army for maintaining the health of the soldiers. Col. Charles H. Mayo spoke on medical and surgical progress during the present war. Lieut.-Col. Horace D. Arnold, chairman of the Council on Medical Education of the American Medical Association, discussed the benefits to the medical and dental professions and schools from higher educational standards.

An interesting feature of the meeting was the presentation of a service flag to the National Dental Association by Dr. Donald M. Gallie, Chicago, which was accepted on behalf of the association by Major C. Victor Vignes of Louisiana. This flag showed that there are 5,981 dentists in the Dental Reserve Corps. Lieut. Vasile Stoica of the Roumanian Legation, Washington, D. C., recounted his experiences on the battle front as a soldier with the Roumanian Army. United States Senator William Borah delivered a patriotic address.

A luncheon was tendered to the former presidents of the association on the stage of the Auditorium Theater. Approximately 1,000 participated in this luncheon, at which speeches were made by Dr. Edwin T. Darby, Philadelphia; Dr. B. Holly Smith, Baltimore; Dr. Harvey J. Burkhart, New York, and Dr. Frank O. Hetrick, Ottawa, Kan., all ex-presidents of the association. They discussed the problems which confronted the dental profession in the year 1883 which led to the adoption of the present organization of the association and the benefits that have accrued as a result of this reorganization.

One of the outstanding features of this meeting was the oration by Dr. A. W. Thornton, Montreal, Canada, on "A Tribute to the Life Work of the Late G. V. Black." Following the oration of Dr. Thornton, members of the association went to Lincoln Park, where the Black Memorial exercises were held. Dr. Truman W. Brophy presented the Black Memorial to the Lincoln Park Board. The unveiling of the memorial was by the four granddaughters of the late Dr. Black. The memorial was accepted on behalf of the Lincoln Park Board by Mr. Bertram M. Winston. Dr. Thomas L. Gilmer, Chicago, who was intimately associated with Dr. Black for many years, cited some interesting reminiscences of this distinguished dentist.

The scientific work of the association was divided into seven sections. Many interesting papers were read before these sections on various topics which were freely discussed.

In the United States Army Dental School Section, under Lieut. William E. Henshaw, Lieut. C. R. Hollister and Lieut.-Col. J. H. Snapp, there was an interesting exhibit of charts and models used for teaching purposes at the schools for Army dental surgeons, located at Camp Greenleaf, Chickamauga Park and Fort Oglethorpe. Surgery of the jaw was profusely illustrated and demonstrated by models, based on the experience of surgeons at the front.

The meeting was a great success both from a social and scientific standpoint, and the attendance was the largest in the history of the association.

FOREIGN

Nordau Elected to Spanish Academy.—The Academia de Medicina Real de Madrid has elected Dr. Max Nordau corresponding member. It will be remembered that he has been interned in Madrid since early in the war.

Italy Taboos German Drugs.—The Italian Medical Congress for Resistance, which met recently in Genoa, voted to urge its members to do everything possible to avoid the use of German drugs, chemicals and surgical instruments.

Outings of French Children in Spain.—The *Archives de médecine des enfants* mentions that a Spanish journal says that a committee has been formed at Barcelona to welcome fifty children from Paris at two nearby seashore resorts. The indignation against the German bombardments of women and children has inspired this manifestation of sympathy for *les petits Parisiens,* and as soon as the French-Spanish frontier is opened, two parties of twenty-five children each are to be sent to Spain.

Epidemic Diseases.—July 27, 111 cases and thirty-three suspected cases of Asiatic cholera were officially reported in Petrograd.——The Swiss government, July 31, ordered the Austrian frontier closed because of the reports of the prevalence of cholera.——Owing to the prevalence of Spanish grip in Rome, the municipality has forbidden performances at theaters, picture houses and music halls; concerts and church gatherings are forbidden until further orders; the penalty for infraction of these regulations will be $1,000, or imprisonment for three months.

Deaths in the Profession Abroad.—**J. Rapin,** formerly assistant of Bourget at Lausanne, lately of Payerne, aged 34.——**P. Delpech** of Paris, fatally poisoned while tending gassed soldiers.——**E. Paz y Gomez,** founder of the *Cornica Medico-Quirurgica* de Habana in 1874.——**J. Kollmann,** professor of anatomy at the University of Basel.——**G. Verriest,** formerly professor of internal pathology at the University of Louvain, president of the Belgian Académie de médecine and of the international congress of neurology at Brussels in 1903.——**E. Bonnaire,** agrégé professor of obstetrics at the University of Paris, and one of the eight members of the editorial staff of the *Presse médicale,* aged 60.——**Dr. Grasset,** professor of general pathology and therapeutics at the University of Montpellier, aged 69.——**Dr. J. E. Iranzo,** professor of clinical medicine at the University of Zaragoza, Spain, and president of the Academia de Medicina y Cirugia.——**J B. Régis,** the noted alienist, professor of psychiatry at the University of Bordeaux, one of the pioneers in psychology, author of the classic "Précis de psychiatrie." Honors had been showered on him in France and abroad.

SOUTH AND CENTRAL AMERICA, MEXICO AND WEST INDIES

Warning Against Pseudomedical Conspiracy.—The *Vida Nueva* of Havana warns physicians elsewhere in Cuba and the sick that persons coming to a city to consult a physician must be one their guard against being taken by unscrupulous hackmen to physicians other than those to whom they were sent.

Personal.—Dr. B. Saenz has been appointed professor of diseases of the skin and syphilis at the University of Havana.——Drs. L. F. Rodriguez and J. A. Simpson and L. F. R. Molina were recently admitted to membership in the Academia de Ciencias at Havana. Dr. Simpson read a paper on hydrocyanic acid found in certain imported *frijoles.*

Monument to Cruz.—The members of the National Public Health Service of Brazil have erected a monument to Oswaldo Cruz on the grounds of the *Public Health Building* at Rio de Janeiro. The bronze portrait figure is seated in the professorial chair, with arms resting on a desk, in a peculiarly graceful and easy pose. The inscription reads: "A Oswaldo Cruz, Homenagem do pessoal da Directoria Geral de Saude Publica, 23-III-1903—19-VIII-1909," the dates marking the period of his most productive work, the eradication of yellow fever from Rio. The statue was unveiled with much ceremony recently in the presence of the highest officials of the country. The *Brazil Medico* of June 15 gives an illustration of the memorial.

BUENOS AIRES LETTER

Buenos Aires, July 1, 1918.

Prevention of Serum Sickness

Prof. J. Penna reported at the meeting of the Academia de Medicina, June 28, a method of warding off serum sickness by means of beef serum. His discovery of it was quite casual. He noticed in treating with normal beef serum 309 patients with anthrax, the almost complete absence of serum sickness or other disturbances from the serotherapy. No tendency to anything of the kind was noted except in 5 cases, that is, in 1.6 per cent. This result was confirmed in 40 cases of typhoid fever, injected with normal beef serum, none of the patients showing any signs of serum sickness. Encouraged by these results, Drs. Kraus and Penna, who together conducted this research, had antitetanus and antidiphtheria serums prepared with beef serum. The serums reached antitoxic values of 300 and 400 units within a short period. This was accomplished by using for the immunizing agents mixtures of diphtheria toxin and antitoxin neutral for guineapigs, or the toxoids of tetanus prepared with formol. These methods allowed the obtaining of serums of extremely high antitoxic value in the course of one or two months.

The antitoxic serums thus obtained against diphtheria and tetanus were injected in 38 cases of diphtheria (20 active cases and in 18 for passive immunization), without any symptoms of serum sickness in any instance. (These cases were in the Hospital Muñiz.) In the Children's Hospital, the injections were given to 9 children with diphtheria and to 32 as a preventive, and there were only 4 cases of transient urticaria. In 7 cases of tetanus, the antitetanus serum was injected in large doses, and there was only one case of urticaria. It is interesting to note also that 6 recovered of the 7 patients with established tetanus.

There were thus a total of 435 patients injected with beef serum and only 1.4 per cent. exhibited any signs of serum sickness. The next step was to determine whether beef serum was capable of warding off the by-effects of horse serum. For this purpose beef serum was injected in 20 patients who had previously been given an injection of horse diphtheria antitoxin, but serum sickness developed in 4, the usual proportion, 20 per cent., and there were 9 cases of urticaria, that is, in 45 per cent.

Then beef serum in amounts of from 100 to 700 c.c. were injected in 15 cases of typhoid, followed by injection of 10 or 30 c.c. of normal horse serum. No signs of serum sickness were apparent in any instance. The same absence of serum sickness was manifest when beef diphtheria antitoxin and horse diphtheria antitoxin were injected in 9 cases, with serum sickness in one the fifth day. One patient with bubonic plague was given an injection of 170 c.c. of beef serum and later 100 c.c. of horse serum; no signs of serum sickness became apparent. The total of all these cases is thus one instance of serum sickness in 24 cases, that is, in the proportion of 4.2 per cent. Then in a group of 11 cases, including 5 of diphtheria, 4 of typhoid and 2 of plague, injections were given of equal parts beef serum and horse serum, and serum sickness developed in 27.2 per cent. In another group of 20 patients, injections were made with both beef serum and horse serum, the former in the larger amounts, but serum sickness developed in 5 per cent.

These experiments apparently demonstrated that normal or antitoxic beef serum only exceptionally induces serum sickness. Used after horse serum, it has no prophylactic action against the latter. But it has a prophylactic action when injected before the horse serum. Mixed with the horse serum, with excess of the beef serum by at least one third, it materially reduces the accidents from serum treatment.

PARIS LETTER

Paris, July 4, 1918.

Celebration of Fourth of July

All of France celebrated the American Independence Day. The homage of the French took expression in many ways. All the public schools and educational institutions of secondary and higher grades were closed.

At the American hospital at Neuilly, in which about 500 American and as many French wounded are being cared for, a solemn high mass was celebrated in the morning, and a sermon was preached in French and in English. Religious hymns and patriotic songs were sung by the wounded and by artistes. The exercises were opened by singing the Star Spangled Banner, and closed by singing the Marseillaise.

The Rehabilitation of Disabled Soldiers

In a previous letter (The Journal, April 13, 1918, p. 1111) was described the evolution of the protheses which the war has forced the nations to provide for the *mutilés*. No less interesting is the evolution of the vocational education which is placed within reach of these men. A most remarkable change has been made.

COMMERCIAL PURSUITS

First of all, commercial work was given attention for several reasons: In the first place, no vocation seemed so attractive to the maimed men as sedentary work, such as accounting, office work, typewriting; second, for the school itself, the teaching of accounting, typewriting, etc., is tempting because it is not onerous and accomplishes a great deal for the effort expended. One teacher can group together a whole class of students, and the initial cost of starting a school and of maintenance are not high. But, gradually, it has become apparent that these positions, never commanding more than mediocre salaries, are likely henceforth to be even less remunerative, as the number of applicants for these positions will be large, especially from among the women. As a matter of fact, these office and administrative positions should be reserved for men who have lost an arm, especially those who have had a shoulder disarticulation.

INDUSTRIAL WORK

In industrial reeducation, such as is now practiced in France, preference is given to manual labor which the artisans can carry on in their village at home or in a shop of their own, and still conserve their independence. Thus the man is trained to be a shoemaker, harnessmaker, carpenter, wood turner, basketmaker, tailor, etc. This makes it possible for these men to return to where they came from, to their village, their family, where they should feel at home. It is regarded as important to refrain from uprooting the men from their former environment.

AGRICULTURAL WORK

A very old proverb says that "agriculture, like the Venus de Milo, is minus the arms" (*manque de bras*). Unfortunately, it is certain that after the war arms will be lacking more than ever, therefore, it is essential to return to the soil the men, of whom there never were enough, even before the war, and to seek to favor agricultural reeducation. It seems, at first, that the hard work in the field is not compatible with these mutilations. In reality, nothing is further from the truth. Dr. Boureau, whose work has been mentioned before, has shown that vocational prostheses are more easily adapted to the men who work in the fields than for any other workers. Why? Because the lost movements that must be supplied are less complicated than those needed for urban labor. Without a doubt, of all the maimed, the one-armed or one-handed men are the ones whose professional orientation is the most delicate to decide, because of the shortness of the stump. It suffices to supply an apparatus which ensheaths the stump, a "godet (cup) de travail" or a mobile screw hook which will enable these men to use agricultural implements readily—the spade, the fork, the scythe, the plow. On the other hand, resort may be had to another method of readaptation. Instead of fitting a prosthesis to the man, it is possible to adapt the machine or the agricultural implement so as to meet the demands of the *mutilés*, in other words, instead of adapting the men to the machines by "arms" or "*mains de travail*" (work-hands) why not, in view of the large number of *mutilés*, adapt the machines to their needs, replacing a pedal by a handle, or vice versa.

Dr. Boureau is of the opinion that the man who before entering on military service was a farmer and who lost his arm at some level so that he cannot make use of it, will find better employment and a more assured existence by returning to his former work, than by taking up work in the city. With an outfit consisting of five apparatus, not very expensive, supported by his previous aptitude, he should be able to render very satisfactory service, as much as his fellow worker who has two arms.

Various schools of reeducation, l'Union des colonies étrangères, l'Union des Syndicats agricoles du Sud-Est, la Société des Agriculteurs de France, and still other welfare agencies have taken up this work. This systematic training of the *mutilés* in up-to-date methods of farming will be fruitful further in educating their less advanced countrymen. They can diffuse rational methods of culture, exploit the small farm products, initiate various improvements in breeding and in the dairy and cheese business.

AGRICULTURAL REEDUCATION OF THOSE BLINDED BY WAR

Even the war blinded (*aveugles de guerre*) can be given agricultural reeducation Without doubt, at first, it appeared to be impossible to help the blind in this direction. Experience, however, has shown that this is not true. Among the tasks which these men can do are to bind sheaves, harvest beets, mow, take care of bees, take care of the garden and many others. It is far better to subject these men to vocational reeducation than to make them objects of maudlin sympathy. Nothing is more convincing than the results obtained in the farm run by the Trappists at Sept-Fons, in the département de l'Allier. The Association Valentin Haüy pour le bien des aveugles has secured for the Trappists the cooperation of a man who was an experienced farmer in Lorraine and for six years has been completely blind. Perseverance in his farm work has enabled this blind farmer to become much more skilful than was deemed possible for a blind man. This farmer has organized at Sept-Fons, the seeing attachés à l'Oeuvre et le trappiste, zouave aveugle de guerre, who, under his direction, are devoting themselves to the service of their comrades, those who before the war were landed proprietors, farmers or merely farm hands.

Dr. Thayer Elected to Membership in the Academy of Medicine

July 2, the Académie de médecine elected Dr. William S. Thayer of Baltimore, Md., U. S. A., a foreign associate member. Four others, Dr. Benoit of Montreal, Dr. Bordet of Brussels, Dr. César Roux of Lausanne and Dr. Ehlers of Copenhagen were also considered, but failed to secure election.

Deaths

Dr. Edouard Maurel, professor of experimental pathology in the Toulouse Faculty of Medicine, died at the age of 78. He had been a national corresponding member of the Académie de Médecine since 1911.

Dr. Jules Ehrmann of Nimes, a native of Alsace, a national associate member of the Académie de médecine, died June 29, aged 83, from angina pectoris. He was known because of his work on the diseases of the palate

DEATH OF DR. DUCHAUSSOY

Dr. Auguste Duchaussoy, formerly associate professor on the Paris Faculté de médecine, died, aged 91. He was founder and secretary general of the Association des Dames françaises, one of the three component societies of the French Red Cross. Thanks to him the ladies were called to aid in war welfare work. The Société française de secours aux blessés militaires was founded in 1864, but its membership consisted of men only. In 1879, Duchaussoy issued a stirring appeal and organized the Association des Mames françaises. In 1881, the Union des femmes de France was organized at his suggestion, and still later the Société française de secours aux blessés militaires decided to admit women to membership.

LONDON LETTER

London, July 23, 1918.

The Future of the Medical Profession

If those German politicians who, with more malice than intelligence prophesied the approaching downfall of the British Empire were to read our journals, they would be painfully surprised to find that we are so little impressed by the efforts of their country that we continue to occupy ourselves with all sorts of domestic problems just as in times of peace. The future of the medical profession is now being discussed with great vigor, as it is recognized that we are on the verge of important changes. Notwithstanding the war, the formation of a ministry of health cannot be long deferred, as the centralization and coordination of the many government departments and authorities which deal with the prevention and treatment of disease is regarded as necessary. The insurance act, whatever its defects, has come to stay and is only a stepping stone to a more complete state control of medicine which, however, is bound to encounter a good deal of professional resistance, as did the insurance act. The British Medical Association is in favor of a ministry of health to be carried out by members representing on an equal footing the preventive and clinical sides of medicine with whole-time medical officers in each administrative area. It proposes that in each local area the medical staff should be of the following classes: (1) exclusively for administration and inspection; (2) resident medical officers to institutions and those in charge of special clinics; (3) pathologists, and (4) those engaged in giving advice and treatment to individual persons otherwise than under Class 2. Class 1 should be whole-time salaried officers; Classes 2 and 3 should be salaried officers, either whole-time or part-time, while Class 4 should not be salaried officers, but should be remunerated either for actual items of work done or for the number of persons for whom they accept responsibility. There should be hospitals, clinics or treatment centers, and pathologic laboratories within each area, with possibilities of consultation open to all who are entitled to the advantages of the public scheme. Voluntary hospitals would be necessary and should be encouraged. Visiting practitioners and consultants at both public and voluntary hospitals should be paid for their services in proportion to the number of patients coming under the public scheme for whom they accept responsibility.

The Panel Medico-Political Union (an organization of the physicians who treat patients under the national insurance act) is in favor of a ministry of health but against any whole-time state medical service for physicians. It favors a large extension of hospitals and the formation of public clinics and treatment centers. The State Medical Service Association (an organization formed for the purpose of bringing about a state medical service) goes much further—to the extent of complete socialism. It advocates a state of clinical service, including physicians, specialists of all sorts, pathologists, dentists, midwives, and nurses who would give whole-time service, which should be free and open to all. In the *Lancet*, the president of the association, Dr. Benjamin Moore, gives the following reasons why the service should be free and open to all. 1. Health is of national importance, and likewise disease is a national danger. The health of the individual is consequently of national concern. 2. Health and not the purse is the factor determining the needs of the individual. Disease being no respecter of persons, science in dealing with its prevention and cure cannot afford to be so. 3. A service organized for the poor is bound to be unpopular and inefficient, even as the poor-law service has been in the past. 4. Modern methods of diagnosis and treatment are becoming so elaborate and costly that people of even considerable means are quite unable to afford them. 5. An enormous amount of disease remains undetected and untreated, as shown by medical inspection of schoolchildren and medical examination of recruits. 6. The service should be in a position to seek out disease in its beginnings and to watch over contacts in cases of infectious diseases, which is impossible under any system of private practice in which the physician has to await the call of the patient, who may be far advanced in illness before he thinks fit to send for him. In the same journal, Sir Bertrand Dawson, physician to the London Hospital, advocates a similar far-reaching scheme. He points out that there is an increasing necessity for team work. Investigations are becoming more and more technical and collective, and treatment is becoming increasingly specialized, with the result that the home is becoming less and less suitable for the sick. The insufficiency of the present organization denies to the physician the opportunities he should have for doing the best work. Hence he is apt to get disheartened and to deteriorate, as would a workman without the best tools or an adequate workshop. Organized equipment should be available to provide him with the means to help himself.

Marriages

Lieut. Roy Lee Laird, M. R. C., U. S. Army, Spokane, Wash., on duty at Camp Greenleaf, Fort Oglethorpe, Ga., to Miss Ethel Paulison Minnard of Chattanooga, Tenn., May 25.

Lieut. Merrill Clary Sosman, M. R. C., U. S. Army, on duty at the Army Medical School, Washington, D. C., to Miss Arline Clark Adams of Chillicothe, Ohio, June 27.

Capt. Edwin Frederick Hirsch, M. R. C., U. S. Army, Chicago, on duty at Camp Grant, Rockford, Ill., to Miss Marian Sharp Lane of Beverly Hills, Chicago, August 3.

Capt. Robert Sixtus Berghoff, M. R. C., U. S. Army, Chicago, stationed at Camp Grant, Rockford, Ill., to Miss Mary Elizabeth Ford of Chicago, August 10.

Alvin Charles Tanner, Minneapolis, Minn., to Miss Edith R. Parent of Boston, in St. Paul, recently.

Leo Gerald Flannery, Philadelphia, to Miss Anna F. Sheehan of Chestnut Hill, July 29.

John Cloyd Souders to Miss Clara Traenkenschuh, both of Rock Island, Ill., July 22.

Deaths

Capt. Maximilian Joseph Herzog, M. R. C., U. S. Army, Chicago; Medical College of Ohio, Cincinnati, 1890; aged 59; a Fellow of the American Medical Association; a pathologist of high rank; dean and professor of pathology, bacteriology and hygiene in Loyola University; who was commissioned captain in the Medical Reserve Corps, April 19, 1917, and honorably discharged for physical disability, April 24, 1918; author of a Textbook on General and Comparative Pathology; pathologist to the German and Maurice Porter hospitals; once president of the Chicago Pathological Society; in 1902-1903; for many years professor of pathology in the Chicago Polyclinic, and later director of the United States Government Laboratories, Manila, P. I.; director of laboratories and research at the Municipal Tuberculosis Sanatorium since 1916; died in that institution, August 9, from chronic interstitial nephritis.

Capt. Samuel Cobb Norris, M. R. C., U. S. Army, Anderson, Ind.; Miami Medical College, Cincinnati, 1894; aged 48; a Fellow of the American Medical Association; a specialist on diseases of the eye, ear, nose and throat; associate professor of Hygiene and Sanitary Science in Indiana University, Bloomington and Indianapolis; for several years city chemist; formerly editor of the Central State Medical Magazine; who was under orders to report for duty at Fort Oglethorpe, Ga., August 14; died at his home, August 4, from disease of the liver.

Lieut.-Col. Clarence LeRoy Cole, M. C., U. S. Army, San Antonio, Texas, Medical College, Topeka, 1903; aged 41; a Fellow of the American Medical Association; who entered the Army, May 10, 1905, and was in charge of the laboratory at Fort Sam Houston, Texas; who had recently been under treatment at the Walter Reed Hospital, Washington, D. C.; was found dead in his quarters, August 9, from a bullet wound of the head, self-inflicted, it is believed with suicidal intent, while suffering from mental depression.

Charles Woodward Gaylord, Branford, Conn.; Yale University, New Haven, Conn., 1872; aged 72; a Fellow of the American Medical Association; health officer and medical examiner (coroner), of the town and borough of Branford and of the town of North Branford; president of the board of trustees of the Blackstone Memorial Library; and a member of the board of education for many years; died in the New Haven Hospital, August 4, a short time after a surgical operation.

Lieut. Guy Austin Tull, M. R. C., U. S. Army, Kansas City, Mo.; on duty with the Three Hundred and Fifty-Third Infantry, Camp Funston, Kan.; Kansas Medical College, Topeka, 1895; aged 49; a Fellow of the American Medical Association; and of the American Academy of Medicine; once president of the Clay County (Kan.) Medical Society and surgeon for the Rock Island System; died at his home, July 13, from chronic interstitial nephritis

Arthur Morrow, Kalispell, Mont.; University of Edinburgh, Scotland, 1886; aged 54; a member and president of the Montana State Medical Association in 1917; once president of the Flathead County Medical Society; health officer of Flathead County; commandant of the State Soldiers Home, Columbia Falls; at one time instructor in the Halifax, N. S., Medical College; was found dead in bed at his home, August 1.

Thaddeus M. Rohrer, Quarryville, Pa.; Jefferson Medical College, 1881; aged 63; at one time a Fellow of the American Medical Associaiton; a member of the Medical Society of the State of Pennsylvania; for several years burgess of Quarryville; medical examiner of schools for the southern part of Lancaster County and of the borough of board of health; died in the Lancaster General Hospital, July 30.

Joseph M. Creamer, Jr., New York City; Long Island College Hospital, Brooklyn; 1897; aged 48; a member of the Medical Society of the State of New York, and of the New York Branch of the American Urological Association; a member of the staff of Bellevue, St. Luke's and the Polyclinic hospitals; died at his summer home, Del Beach, N. J., July 28, from cerebral hemorrhage.

Harry Walker, Pawhuska, Okla.; Bellevue Hospital Medical College, 1884; aged 57; at one time a Fellow of the American Medical Association; a member of the Oklahoma State Medical Association; local surgeon of the Oil Fields and Santa Fe Railroad; for many years physician at the Osage Agency; died at his home, July 26.

David Townsend McKinney, Pittsburgh; University of Louisville, Ky., 1898; aged 43; a member of the Medical Society of the State of Pennsylvania; Acting Assistant Surgeon, U. S. Army, during the war with Spain; industrial surgeon on the relief force at the Westinghouse Electric and Manufacturing Company, East Pittsburgh; died in Pittsburgh, July 9, from angina pectoris.

Samuel Calhoun Stremmel, Macomb, Ill.; College of Physicians and Surgeons, Chicago, 1889; aged 55; a Fellow of the American Medical Association; surgeon in chief of the Marietta Phelps Hospital, Macomb; a member of the Macomb board of health for twenty years; died at his home, July 24, from carcinoma of the pancreas.

Louis Falge, Manitowoc, Wis.; Rush Medical College, 1887; aged 56; a Fellow of the American Medical Association; since 1908 coroner of Manitowoc County; a member of the county board of education since its organization; county physician at one time; died in the Manitowoc Hospital, August 4.

John Jacob Edic, Leavenworth, Kan.; Bellevue Hospital Medical College, 1867; aged 81; emeritus professor of principles and practice of medicine in the Kansas City (Mo.) Hahnemann Medical College; formerly president of the Homeopathic Medical Society of Kansas; died at his home, July 31.

Clayton Crawford Davis, Hillsboro, Texas; University of Alabama, Mobile, 1889; aged 59; a Fellow of the American Medical Association; a prominent surgeon of Central Texas; died in a sanatorium in Waco, Texas, July 31, from heart disease, a short time after an operation for removal of the tonsils.

Chase L. Ferris, Hamilton, Ohio; Medical College of Ohio, Cincinnati, 1903; aged 39; died at the home of his mother in Hamilton, July 27, from the effects of a bullet wound of the skull, self-inflicted, it is believed, with suicidal intent, while mentally irresponsible on account of despondency.

Forbes James Munson, Brooklyn; Long Island College Hospital, Brooklyn, 1897; aged 49; for more than twenty years a diagnostician of the Brooklyn Board of Health; assistant surgeon to the Bushwick Hospital; died at his home, July 27, from cerebral hemorrhage.

Harry Dare Jerwick, Hot Springs, Ark.; Tulane University, New Orleans, 1918; aged 24; an intern in Charity Hospital, New Orleans; and a member of the Enlisted Medical Reserve Corps, U. S. Army; died in Charity Hospital, July 16, from typhoid fever.

Clarence W. Goss, Lancaster, Ohio; Starling Medical College, Columbus, Ohio, 1889; aged 50; a Fellow of the American Medical Association; physician to the Boy's Industrial School, Lancaster; died at his home, July 29, from tuberculosis.

John E. Hamill, Phoenix, N. Y. (license, New York, 1880); aged 79; a member of the Medical Society of the State of New York; a practitioner for more than half a century; died at the Hospital of the Good Shepherd, Syracuse, July 25.

Ezra Smith Koons, Glouster, Ohio; Starling Medical College, Columbus, Ohio, 1890; aged 61; a Fellow of the American Medical Association; died in Grant Hospital, Columbus, July 31, from septicemia, following a mosquito bite.

William Aloysius Gillen, Jr., Brooklyn, College of Physicians and Surgeons in the City of New York, 1906; aged 35; assistant attending surgeon to St. Mary's Hospital, Brooklyn; died at his home, July 29, from typhoid fever.

Henry Burt Herrick, Cleveland, Ohio; Western Reserve University, Cleveland, 1891; aged 54; a Fellow of the American Medical Association; who had been engaged in Red Cross work in France; died in Brest, June 16.

Henry M. Lewis, New York City; Hahnemann Medical College, Philadelphia, 1870; aged 69; surgeon to the Metropolitan Hospital, Blackwell's Island, N. Y.; died at the home of his daughter in Chester, Pa., July 28.

Addis Bernard Gordy, Butler, Ga.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1899; aged 44; died in the City Hospital, Columbus, Ga., July 25, five days after an operation for appendicitis.

Andrew Pearson, Wakefield, Kan.; Rush Medical College, 1883; aged 58; resident physician at the Chiloco Indian Reservation; died in the Presbyterian Hospital, Chicago, July 14.

Augustus Francis McKay, Colorado Springs, Colo.; Georgetown University, Washington, D. C., 1872; aged 68; died in Pueblo, Colo., July 24, from cerebral hemorrhage.

Simon W. Simmons, Laurel, Ohio; Starling Medical College, Columbus, Ohio; 1884; aged 76; a veteran of the Civil War; died at the home of his daughter near Sidney, Ohio, July 30, from senile debility.

Leonidas H. C. Mintzer, Spokane, Wash.; Jefferson Medical College, 1898; aged 45; formerly chief sanitary officer in the health department of Spokane; died in San Diego, Calif., July 17, from tuberculosis.

Robert Stuart, Spiceland, Ind.; Jefferson Medical College, 1860; aged 80; at one time a member of the Indiana State Medical Association; died at the home of his daughter in Henderson, Ky., July 26.

Lyman S. Crotser, Petoskey, Mich.; University of Michigan, Ann Arbor, 1883; aged 60; a member of the Michigan State Medical Society; died in a hospital in Petoskey, July 25, from cerebral hemorrhage.

Ferdinand Lessing, Philadelphia; University of Pennsylvania, Philadelphia, 1869; aged 81; a surgeon of volunteers during the Civil War; also an apothecary; died at his home, July 10.

Henry C. Sommerville, White Post, Va.; University of Pennsylvania, Philadelphia, 1870; aged 84; a Confederate veteran; for fifty years presiding elder; died at his home, July 27.

John Webster Collins, Toronto, Ohio; Columbus (Ohio) Medical College, 1879; aged 74; a Fellow of the American Medical Association; died at his home, July 31.

Douglas Adolphus Shiley, Bloomfield, Ind.; Bellevue Hospital Medical College, 1872; formerly of Chicago; died at his summer home in Bloomfield, Ind., August 9.

Samuel Palmer Rawls, Altus, Okla.; Charity Hospital Medical College, New Orleans, 1873; a Fellow of the American Medical Association; died at his home, June 20.

Henry Herbert Reynolds, Malone, N. Y.; University of Vermont, Burlington, 1890; aged 56; a Fellow of the American Medical Association; died at his home, July 27.

James C. S. Harrod, Denning, Ark.; Memphis, Tenn., Hospital Medical College, 1891; aged 52; a member of the Arkansas Medical Society; died at his home, July 27.

Elisha P. Bomar, Ohoopee, Ga.; Atlanta (Ga.) Medical College, 1894; aged 50; a Fellow of the American Medical Association; died at his home, April 27.

Thomas L. Bacon, Hopkinsville, Ky.; University of Louisville, Ky., 1855; University of Pennsylvania, Philadelphia, 1861; aged 85; died at his home, July 30.

John McGregor, Yankton, S. D.; University of Glasgow, Scotland, 1861; M. R. C. S., Edinburgh, 1865; aged 87; died at his home, June 18, from senile debility.

Charles E. Bauer, St. Louis, Missouri Medical College, St. Louis, 1879; aged 59; a Fellow of the American Medical Association; died at his home, July 30.

Charles H. Mann, Bridgeport, Pa.; Jefferson Medical College, 1874; aged 66; a Fellow of the American Medical Association; died at his home, August 3.

Georgia Anna Arbuckle Fix, Gering, Neb.; University of Nebraska, Homeopathic Department, Lincoln, 1885; aged 55; died in San Diego, Calif., July 26.

Charles R. F. Greene, Peekskill, N. Y.; New York Homeopathic Medical College, New York City, 1892; aged 50; died suddenly at his home, August 1.

William Alfred Hobday, Goldfield, Nev.; University of Buffalo, N. Y., 1881; aged 57; died at Palms, Calif., July 27, from carcinoma of the liver.

Charles A. Kiefer, Dayton, Ohio; Pulte Medical College, Cincinnati, 1876; aged 64; died at his home, July 22, from cirrhosis of the liver.

August W. Ringer, Cincinnati; Medical College of Ohio, Cincinnati, 1872; aged 70; died at his home, August 1, from cerebral hemorrhage.

Guernsey P. Waring, Alhambra, Calif.; Dunham Medical College, Chicago, 1897; aged 65; died at his home, July 29, from heart disease.

Charles Samuel Abbott, Providence, R. I., Dartmouth Medical College, Hanover, N. H., 1880; aged 76; died at his home, June 23.

Harry Hall Woodward, Des Moines, Iowa; Drake University, Des Moines, 1887; aged 55; died at his home, July 6.

David Townsend McKinney, Pittsburgh; Jefferson Medical College, 1860; died at his home, July 9.

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

MORE MAIL-ORDER FRAUDS

Four Concerns Are Debarred from the United States Mails

The public does not realize the wonderfully efficient work that the United States postal authorities are doing in protecting it against mail-order fakers of a medical or quasi-medical type. The task of the postal inspectors who investigate such concerns is a difficult and thankless one, for the exploiters of some of these frauds possess no little influence. Neither does the public fully realize the value of the painstaking and judicial reports made by Judge W. H. Lamar, the solicitor of the Post Office Department, who submits to the Postmaster-General the various memoranda based on the postal inspectors' reports. The Journal is practically the only publication that gives any extended account of the government's work in this direction. For some years the Propaganda Department has been publishing more or less complete reports of the cases in which the government has closed the mails to medical frauds. Following are some brief articles of this type:

Mrs. A. S. Hon.—Mrs. Hon conducted a medical mail-order business at South Bend, Indiana, advertising and selling various alleged remedies for the self-treatment of ailments peculiar to women. Mrs. Hon is of Polish descent and her husband, who was also interested in the business, was born in Poland and, although he had been in this country for twenty-five years, is, according to Mrs. Hon's testimony, practically unable either to read or to write English. Neither Mrs. Hon nor her husband have the slightest medical knowledge nor have any of her employees. The only physician who had anything to do with the business was one "Dr. Fears" who was said to visit the office from time to time when the nostrums were being compounded. The preparations were analyzed by the Bureau of Chemistry of the Department of Agriculture at the time of the investigation by the Post Office Department into this humbug. "Mrs. Hon's Healing Compound" was found to be a pinkish powder consisting chiefly of alum with small amounts of boric acid, zinc sulphate, thymol, coloring matter, etc. "Mrs. Hon's Womb Suppositories" had a fatty base resembling lard with some cocoa-butter and contained a considerable quantity of alum with small amounts of boric acid, zinc sulphate, morphin and coloring matter. "Mrs. Hon's Invigorator Pills" were black, sugar-coated, elliptical pills of the iron-quinin-strychnin type. "Mrs. Hon's Stomach Tablets" were bright red, sugar-coated tablets containing large amounts of bismuth subgallate and magnesium (calculated as Epsom salts) with small amounts of aloes, red pepper, etc. "Mrs. Hon's Womb Relief" was a coarsely ground powder of aromatic odor which under the microscope showed the presence of cloves, cinnamon, scullcap and unidentified root and bark. The claims made by Mrs. Hon for her nostrums were obviously and patently false and fraudulent. She, of course, submitted a number of testimonials in defense of her business. After considering all the evidence in the case, Judge Lamar, solicitor for the Post Office Department, declared the business a scheme for obtaining money through the mails by means of false and fraudulent pretenses, representations and promises and he recommended that a fraud order be issued. This order was issued May 23, 1918.

The Publishers' Advertising Agency, Inc.—This rather imposingly named affair was promoted by one Clarence E. Worthen, Boston, Mass., who was called on by the federal authorities to show cause why a fraud order should not be issued against the business. On the date set for the hearing, Abraham Goldberg, attorney for Worthen, asked that action in the matter be deferred until a reply to the charges could be prepared. This request was granted. Shortly afterward an answer was submitted denying the charges but stating that Worthen would be unable to appear before the department in person. The attorney indicated that Worthen would be willing to take steps looking to the dissolution of the business if the Post Office Department would drop the charges. The federal authorities, however, would not entertain this proposition. Judge Lamar, solicitor for the department reported the facts in the case to be, in part, as follows:

> "The Publishers' Advertising Agency, Inc., is operated by Clarence E. Worthen who acts as its president and treasurer, for the sole purpose of securing space in various newspapers published throughout the country to be devoted to the advertising of a large number of proprietary articles compounded and sold by him through drug stores, and is not a bona fide advertising agency in that it does not handle advertising for any other concern or person. The mails are used in the transmission of letters written by Worthen on stationery on which appears the name The Publishers' Advertising Agency, Inc., and which are addressed to the publishers of newspapers with the view of contracting for the advertising space above referred to. The scheme is used to secure advertising on credit which is usually accorded to an advertising agency but denied to an individual. The post office inspector who conducted the investigation has submitted evidence showing conclusively that it is not Worthen's intention to pay for the advertising thus secured, nor does he as a matter of fact do so. One hundred and twenty-six publishers have complained to the department that they had run Worthen's advertising in accordance with the contract but that they were unable to obtain any money whatsoever from him. The total amount of these unpaid bills is $4,161.77, and it is safe to assume that this is a mere trifle compared with the total amount which Mr. Worthen owes for advertising. He gives the address of the concern as 44 Bromfield Street, Boston, Massachusetts, but it is found that this is a blind address as Worthen does not even have desk room at that place. All of his mail so addressed is forwarded for delivery to 153 West Emerson Street, Melrose, Massachusetts, his place of business.
>
> "The postmaster at Boston, Massachusetts, reports that on an average fifty letters and about two sacks of papers are daily received at his office addressed to this concern."

The solicitor declared that the scheme was one for obtaining property through the mails by means of false and fraudulent pretenses, representations and promises and recommended the issuance of a fraud order. It was issued.

L. A. Johnson, alias "Dr. George B. Williams" and "The Associated Doctors."—Post Office Inspector M. R. Martin of the St. Louis Division submitted evidence to the solicitor of the Post Office Department showing conclusively that L. A. Johnson was conducting a scheme for obtaining money through the mails by fraud. Johnson, it seems, is an ignorant negro about 35 years old who located at Lake Village, Ark., last November and has been operating ever since under the names "Dr. George B. Williams," "Dr. L. A. J. Johnson" and "The Associated Doctors." He has been twice prosecuted and fined in the local courts for practicing medicine without a license but after paying his fines continued his operations. In April Johnson was arrested on the charge of using the mails to defraud and was held under $500 bail to await the action of the United States grand jury at the October term of court. Johnson did not furnish bail and is held in the Pulaski County Jail at Little Rock. His victims were mostly negroes to whom Johnson sent a circular telling of his alleged supernatural and superhuman powers describing himself as a "man of wonder" and a "revealer and controller of many things spiritual and material" alleging further that he was "born of a blessed mother" and "received the gift from Heaven according to the will of God," ending up with the claim that he would cure anything "you were not born with." Johnson modestly describes himself thus:

> "Dr. L. A. J. Johnson, I. N. S. W. B. A., Master of Sixth and Seventh Book of Moses, Chiropractic, Phrenology, Philosophy, Anatomy, Telepathic Mentalist, Pathology, Chemistry, Spirit Binding; American University of Kiropractic, Osteology, Arthrology, Neurology, Myology, Angiology, Splanchnology; Treatment of all kinds of diseases with the Hand, Mind and Herbs. Cure absolutely guaranteed or no pay. I Can Help You in all Things."

Judge W. H. Lamar, solicitor of the Post Office Department in his memorandum to the Postmaster-General said, in part:

> "It will be noted from this circular that Johnson claims he is possessed of superhuman and supernatural knowledge and that he can cure anything 'you were not born with'; that he had accomplished wonders in hospitals, homes and courts, having practiced in Central America, West India, Cuba and Canada. The wording is so framed as to appeal to the superstition and ignorance of certain of the colored race. The falsity and absurdity of the pretentions and representations appearing therein are too apparent to require refutation. Although the circular sets out that if no cure is effected there will be no charge it has been ascertained that Johnson will not take up a case unless an advance fee of from $10 to $15 is paid."

Johnson admitted, when under oath, that, although posing as a doctor, he had never been granted a license to practice medicine in any state, that he had never attended any kind of a school except a country public school when a boy, that there was no meaning to a number of the abbreviations and phrases used in his circular but that he employed them for the purpose of giving a savor of mystery which the negroes did not understand. Johnson received mail and cashed money orders under both the names Williams and Johnson and as it seemed probable that he would be successful in furnishing bail and thereby secure his release from jail it was likely that he would continue his fraudulent practices. The amount of money filched from credulous negroes through the operation of this scheme is estimated at $1,000. On May 20, 1918, a fraud order was issued against Johnson closing the mails to him.

Last Chance Medicine Company.—C. Frank Jones, a negro who kept a small drug store at Birmingham, Ala., did business under the names "The Last Chance Medicine Company" and "Dr. C. Frank Jones." Jones was without any medical education or training but held himself up to the public as a physician skilled in the diagnosis and treatment of disease and promised a cure to all who took his treatment. At the time Judge Lamar submitted his memorandum to the Postmaster-General recommending that Jones be denied the use of the United States mails, Jones was in the Birmingham city jail serving a sentence of ninety days following his conviction for practicing medicine without a license. In his memorandum Judge Lamar says:

> "When his establishment was raided by the city authorities a number of letters from negroes requesting treatment for various ills were found bearing upon the envelopes notations showing the amounts requested to be sent in payment for the treatment. A very lengthy symptom blank similar to that employed by the ordinary medical mail order fake in which a great number of questions are asked is used by him in furtherance of the scheme. It has been repeatedly testified before this office by experts in the science of the treatment of disease that physicians of knowledge and experience cannot determine from the answers to such questions the nature of the trouble from which the patient is suffering or the cause thereof, but Jones, who has no such knowledge or experience, attempts to and does by false pretenses made to persons through the mails convince them that he is a skilled physician fully capable of determining the trouble from which they are suffering and is able to and will give to them a rational and effective remedy for such trouble. All the representations including the pretentious symptom blank are typical specimens of the literature employed by the usual mail order fraud and are used by him for the purpose of inducing persons who are sick or believe themselves to be sick to part with their money in payment for a treatment which the evidence fully shows and which he is well aware is without efficacy in giving them relief or restoring them to health.
>
> "The evidence in this case is so conclusive of the fraud practiced that it was deemed unnecessary to issue a citation to show cause before recommending the issuance of a fraud order."

The mails were closed to Jones, May 29, 1918.

Correspondence

THE SIGNS OF SYPHILIS

To the Editor:—In the current number of the *American Journal of Syphilis,* Dr. A. S. Warthin of the University of Michigan contributes an extraordinary paper on the "New Pathology of Syphilis," in which he states that, as a result of microscopic methods, he has been able to demonstrate syphilitic changes in 40 per cent. of 750 subjects examined postmortem. Assuming that the population of the state of Michigan is neither more nor less venereally unfortunate than that of other localities, Dr. Warthin's statement naturally suggests that 40 per cent. of humanity is demonstrably if not dangerously syphilized. Happily for the individual as well as for a profession that is already sufficiently if not unduly impressed by the ubiquity of syphilis, the methods by which Dr. Warthin arrived at this remarkable and disquieting conclusion are not beyond dispute, identical methods in other hands having failed to yield comparable results. For example, Dr. Warthin, on the basis of a comparatively limited necropsy experience, makes the extraordinary statement that in "only a small number of cases are the gross lesions . . . typical enough to be recognized by the naked eye" and that "the pathologic diagnosis of syphilis is essentially microscopic."

I venture to suggest that the pathologist whose routine brings him in contact with one or several necropsies daily, and who is called on thousands of times in the course of every year to interpret microscopic alterations in tissues, will be slow to subscribe to these sentiments. Certain it is that the "sclerosis of connective tissue and plasma cell infiltration," so prominently depicted by Warthin as characterizing syphilitic lesions, are not so confidently interpreted by most pathologists. So, too, Warthin's measure of success in finding *Spirochaeta pallida* in apparently unchanged tissues or in small fibrotic foci in different organs has not fallen to the lot of certain other pathologists employing the same methods in search of the self-same truth, and bespeaks for the distinguished Michigan investigator an acuity of vision that is apparently vouchsafed to few. In fact, the demonstration of spiral micro-organisms in silver preparations of the older, sclerotic tissues of known syphilitic lesions is by no means an easy or common accomplishment, and even in active, vicious syphilis it is sometimes a fruitless task. Nor has the Wassermann reaction aided materially in the all-important determination of the incidence of syphilis. While a positive Wassermann reaction is a highly suggestive indication of syphilis, it is now almost universally admitted that the reaction has its limitations—an occasional enthusiast to the contrary—and that it sometimes occurs in conditions other than syphilis and that it does not always occur in syphilis.

All things being taken into consideration, it would seem that the most dependable signs of syphilis still are those which pathologic anatomists and properly trained clinicians have long known, the refinements of serology and of microscopic technic serving as additional considerations of undoubted value.

Douglas Symmers, M.D., New York.
Acting Director of Laboratories, Bellevue and Allied Hospitals.

SODIUM INSTEAD OF POTASSIUM SALTS—WITH ONE EXCEPTION

To the Editor:—I am strictly in favor of the agitation which has for its purpose the replacement whenever possible of potassium salts by the corresponding sodium salts. Whenever the corresponding potassium and sodium salts are equivalent in their action, the sodium salt is practically always preferable. It is less depressing and less irritating to the gastro-intestinal tract.

There is, however, one exception. And that is the iodid. I would consider it a calamity if physicians were induced to use on their tertiary syphilitic patients sodium iodid instead of potassium iodid.

It is a truism to say that a salt does not merely present the sum of actions of its component elements or ions. Chlorin in combination with hydrogen does not have the same effect as chlorin in combination with sodium. And iodin in combination with sodium has not the same effect as iodin in combination with potassium. Though the percentage of iodin in sodium iodid is considerably greater than in potassium iodid, nevertheless a certain dose of potassium iodid will exert a much more decided and intensive action than the same dose of sodium iodid. The action of the iodin ion seems to be greatly intensified by its combining with the potassium ion.

No syphilologist, no general practitioner, who had occasion to treat tertiary syphilis, ulcerative gummas or gumma of the brain would fail to bear testimony to the difference in effect between potassium and sodium iodid.

Let us all use sodium salts instead of their corresponding potassium salts, but let us bear in mind this one exception: not to substitute sodium iodid or ammonium iodid or any other iodid when potassium iodid is distinctly and unequivocally indicated.

William J. Robinson, M.D., New York.

EGG-SHELLS AT ARMY HOSPITALS

To the Editor:—An experience in the Civil War at the Satterlee Hospital in West Philadelphia was described by Weir Mitchell in an address in Chicago not long before he died. At that one hospital of 3,000 beds the egg-shells were saved and sold. The revenue, if I remember rightly, was $3,000 a year! They were used in the manufacture of face powder, as they are pure calcium carbonate. The revenue went into the hospital fund for the purchase of otherwise unobtainable luxuries for the sick. With our present immense armies the revenue from this one "by-product" should be correspondingly increased. Possibly this has already been done, but I have failed to see any statement to that effect.

W. W. Keen, M.D., Philadelphia.

Queries and Minor Notes

Anonymoums Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

DI-CROTALIN TREATMENT OF EPILEPSY

To the Editor:—Do you have any literature or information relative to the Di-Crotalin treatment for epilepsy? I will be very grateful if you can furnish information as to method of preparation, rationale of the treatment, etc.

R. R. Decker, Captain, M. R. C.,
U. S. Soldiers' Home, Washington, D. C.

Answer.—Di-Crotalin is a rattlesnake venom preparation sold by the Swan-Myers Company of Indianapolis as a "Treatment for Epilepsy, Chorea, Bronchial Asthma, Chronic or Hereditary Nervous Headache, Nervous Prostration Incident to Change of Life, Hysteria-Mania, Insomnia, Neurasthenia, etc." Dr. Thomas J. Mays of Philadelphia advocated the use of rattlesnake venom for tuberculosis. Later his former assistant, Dr. R. H. Spangler, used the same material in the treatment of epilepsy. That any measure of success sufficient to justify the adoption of the rattlesnake venom or crotalin treatment for epilepsy has resulted is not to be concluded from the available reports. Still less evidence is there for the use of rattlesnake venom in the list of conditions for which the Swan-Myers Company has recommended its preparation. There are a number of good reasons why a cautious physician will shun the administration of this treatment and advise against it. J. F. Anderson, working in the hygienic laboratory of the United States Public Health Service, reported a death from the crotalin treatment in consequence of infection, and reports that the market supply of crotalin solution and crotalin tablets is highly contaminated. He also found both crotalin and crotalin solution to vary in activity. The use of rattlesnake venom was discussed in The Journal, March 15, 1913, p. 850.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ALASKA: Juneau, Sept. 3. Sec., Dr. L. P. Dawes, Juneau.

COLORADO: Denver, Oct. 1. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

HAWAII: Honolulu, Sept. 9-13. Pres. R. W. Benz, 1141 Alakea St., Honolulu.

IDAHO: Boise, Oct. 1-2. Sec., Dr. Ray H. Fisher, Rigby.

IOWA: Des Moines, Sept. 10-12. Sec., Dr. G. H. Sumner, Capitol Bldg., Des Moines.

MASSACHUSETTS: Boston, Sept. 10-12. Sec., Dr. W. P. Bowers, Room 501-1 Beacon St., Boston.

MINNESOTA: Minneapolis, Oct. 1-4. Sec., Dr. T. McDavitt, 741 Lowry Bldg., St. Paul.

MISSOURI: Kansas City, Sept. 30-Oct. 2. Sec., Dr. George H. Jones, State House, Jefferson City.

MONTANA: Helena, Oct. 1. Sec., Dr. S. A. Cooney, Power Bldg., Helena.

RHODE ISLAND: Providence, Oct. 3. Sec., Dr. B. U. Richards, 315 State House, Providence.

Methods of Chiropractors Included in the Practice of Medicine

Laying a patient down on his face and manipulating the vertebrae or twisting the neck with the hands or pressing on the spinal column with the hands and at times with the knees, as is done by chiropractors, constitutes the practice of medicine within the meaning of the Medical Practice Act. This is the gist of an opinion recently handed down by the Appellate Court of the Fourth District in the case of the *People of the State of Illinois* v. *J. H. Black.* Mr. Black is a graduate of the Davenport School of Chiropractic, and for about eighteen months prior to the beginning of the suit was located at Junction City in Gallatin County. He opened up an office, placed a sign thereon with the words "Dr. Black, Chiropractic," and carried on the practice of his profession in that office without being licensed by the Department of Registration and Education. On the trial of the case in the Circuit Court, the jury found that he was not guilty of violating the Medical Practice Act. The Appellate Court reversed the finding of the lower court and held that the verdict of the jury was manifestly against the evidence and the law. The Appellate Court holds that one of the instructions given by the lower court on behalf of Mr. Black was erroneous and misleading and should not have been given. This instruction is as follows:

> And you are further instructed that if you believe by a preponderance of the evidence that the defendant did not practice medicine, but that his acts were, in fact, an adjustment of the human body for the purpose of adjusting the spinal column or other organs for the nerves for the purpose of causing the flow of blood to flow freely, and by so doing that the blood would flow freely, and thereby the cause removed, then the defendant would not be guilty of practicing medicine in violation of said statute, unless he held himself out or advertised himself as a doctor or physician.

The Appellate Court says that the foregoing instruction is in direct conflict with the section of the Medical Practice Act defining who are to be regarded as practicing medicine and also in direct conflict with the opinions of the Supreme Court on this subject.

The American Board for Ophthalmic Examinations

The American Board for Ophthalmic Examinations will hold its fifth examination at the New York Eye and Ear Infirmary, New York, Friday, Oct. 25, 1918. In addition to the general requirements for admission, the examinations in ophthalmology consist of case records, written examinations and clinical laboratory and oral examinations. Candidates are required to submit twenty-five complete case records. Ten of these should be cases of ocular diseases and defects of varied character, including errors of refraction or muscle balance, and external ocular diseases or diseases of the uveal tract or retina, or of the optic nerve or glaucoma. The reports should show especially the reasons for diagnosis and for the operative treatment and the technic of operations.

The written examination will test the candidate's knowledge of the underlying principles or science of ophthalmology, including anatomy, embryology, physiology, physiologic optics, pathology, relations of the eye to other organs and diseases of the body. The oral examination will include the external examination of the eye; ophthalmoscopy (candidates are requested to bring their own ophthalmoscopes); measurements of errors of refraction; testing of the ocular movements and fields of vision; realtions of ocular conditions to diseases of other parts of the body and their treatment, and laboratory examination in the histology, pathology and bacteriology of the eye.

For further information address the secretary, Dr. W. H. Wilder, 122 South Michigan Avenue, Chicago, Ill.

Kansas June Examination

Dr. H. A. Dykes, secretary of the Kansas Board of Medical Registration and Examination, reports the written examination held at Topeka, June 18-19, 1918. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Sixteen candidates were examined, all of whom passed. Fifteen candidates were licensed through reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Total No. Licensed
Hahnemann Medical College and Hosp. of Chicago	(1918)	1
University of Kansas	(1918)	14
Washington University	(1917)	1

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Bennett Medical College	(1910)	Illinois
College of Phys and Surg., Chicago	(1912)	Illinois
Hahnemann Med. Coll. and Hosp. of Chicago	(1907)	Illinois
Jenner Medical College	(1912)	Illinois
Rush Medical College	(1916)	Illinois
Keokuk Medical College, Coll. of P. & S.	(1906)	Iowa
Hospital College of Medicine	(1902)	Illinois
Louisville Medical College	(1907)	Penna.
University of Louisville	(1909)	Illinois
Tulane University	(1913)	Oklahoma
Ensworth Medical College	(1909)	Missouri
St. Louis College of Physicians and Surgeons	(1910)	Oklahoma
Washington University	(1917)	Missouri
University of Oklahoma	(1917)	Oklahoma
Vanderbilt University	(1915)	Alabama

Maine July Examination

Dr. Frank W. Searle, secretary of the Maine Board of Registration of Medicine, reports the written examination held at Augusta, July 2-3, 1918. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 6 candidates examined, 5 passed and 1 failed. Two candidates were licensed through reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Chicago College of Medicine and Surgery	(1908)	75.5
Bowdoin Medical School	(1918)	85
University of Maryland	(1914)	79
Harvard University	(1918)	78
Columbia College in the City of New York	(1892)	75
FAILED		
Tufts College Medical School	(1898)	65

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Starling-Ohio Medical College	(1911)	Ohio
Montreal School of Medicine and Surgery	(1902)	Illinois

South Dakota July Examination

Dr. Park B. Jenkins, secretary of the South Dakota State Board of Health and Medical Examiners, reports the practical and written examination held at Deadwood, July 9-11, 1918. The examination covered 15 subjects and included 100 questions. An average of 75 per cent. was required to pass. Seven candidates were examined, all of whom passed. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Atlanta Medical College	(1915)	84
College of Physicians and Surgeons, Chicago	(1907)	89
Loyola University	(1916)	86
University of Illinois	(1913) 85; (1915)	83
University of Nebraska	(1914)	90
McGill University	(1915)	83

Book Notices

Animal Parasites and Human Disease. By Asa C. Chandler, M.S., Ph.D., Instructor in Zoology, Oregon Agricultural College. Cloth. Price, $4.50 net. Pp. 570, with 254 illustrations. New York: John Wiley & Sons, Inc., 1918.

In this work the rôle played by animal parasites in causing disease in man, either by direct invasion of the human host, or indirectly by serving as the carriers of the morbific agent, is clearly set forth. The author is a teacher of zoology, and naturally he lays special emphasis on the structure and biologic features of these animal parasites. The more strictly medical aspects, such as the clinical feature of the disease, the finer details of diagnosis, are often rather scantily treated. In the strict sense, therefore, it cannot be regarded as a textbook of medicine, nor is it the author's intention that it should be so regarded. He clearly states this in the preface. In a word, the book is more or less popular in character. Viewed from this standpoint, it may be commended. Information has been compiled from various sources and is presented in an orderly, readable style. While he is generally thoroughly reliable, one may note the tendency of the compiler occasionally to accept as true certain printed statements, perhaps because there is lacking the check that would have come from a healthy skepticism had there been personal laboratory, bedside or research experience. For instance, the statements regarding the diagnostic value of the Wassermann and luetin tests in syphilis and the curative effect of arsphenamin are much too optimistic according to the views of many competent men of experience. The relation of intestinal worms to appendicitis is also questionable. But, on the whole, the work is acceptable. It is freely illustrated with excellent cuts that are explanatory and helpful.

The Composition of Certain Patent and Proprietary Medicines. Compiled by John Phillips Street, Major, Sanitary Corps, N. A. Cloth. Price, $1.25. Pp. 274. Chicago: American Medical Association, 1917.

It has been estimated that the American public spends annually $150,000,000 for proprietary—"patent"—remedies, the great majority of which are secret in composition. This fact alone, Major Street suggests, makes the actual composition of such products of direct public interest. Although a large amount of information on this subject has been published by various organizations, particularly by the American Medical Association, by the federal government and by the inspection officials of some of the states, the records have been widely scattered and, in many instances, practically inaccessible to the public. The purpose of this compilation is to bring into one volume an accurate record of the hundreds of analyses scattered through some fifty publications. Mr. Street has done the work well. Although the great majority of the preparations whose analyses are given are of the "home remedy" or "patent medicine" type, there are not a few products that are sold, ostensibly at least, for physicians' prescriptions. Analyses of more than 2,500 proprietary medicines are given; and as several analyses of some of these remedies have been made at different times or by different sources, there are more than 3,100 analyses. No attempt is made to discuss the value or lack of value of the preparations dealt with, and the author specifically states that the matter is "published without comment and without prejudice." There is no doubt that the compact form in which they are put out will make the book a useful compendium to all those who are interested in the proprietary medicine problem.

Interpretation of Dental and Maxillary Roentgenograms. By Robert H. Ivy, M.D., D.D.S., Associate Surgeon, Columbia Hospital, Milwaukee. Cloth. Price, $2.50. Pp. 146, with 259 illustrations. St. Louis: C. V. Mosby Company, 1918.

This is a helpful book for the dentist or physician who is not an expert in the interpretation of dental roentgenograms, but who desires to be able to read with reasonable accuracy the films of teeth that are now so frequently brought in by patients as aids in diagnosis. A brief outline is given of the anatomy and pathology involved in the roentgenograms of the teeth and jaws, together with the bearing of the abnormal findings on clinical diagnosis, prognosis and treatment. Some technical points as to the methods of making stereoscopic plates are taken up, and then follow several pages of illustrations showing normal and pathologic conditions. These illustrations are for the most part good and the descriptive legends clear and to the point. The book is well printed and fulfils the purpose stated in the preface of presenting to members of the medical and dental professions the data necessary for making an intelligent diagnosis of pathologic conditions about the teeth and jaw bones in which roentgen examination plays a part.

Oral Sepsis in Its Relationship to Systemic Disease. By William W. Duke, M.D., Ph.B., Professor of Experimental Medicine in the University of Kansas School of Medicine. Cloth. Price, $2.50. Pp. 124, with 170 illustrations. St. Louis: C. V. Mosby Company, 1918.

This excellent little volume deals with the question of dental sepsis and its effects on bodily health, both direct and remote. One chapter is devoted to pyorrhea, another to alveolar abscesses, another to metastatic infections, another to the subject of nonrelated infections as influenced by oral sepsis, and another chapter to the toxic effect of oral sepsis and its relation to headache. There is a good summary, and the conclusions drawn from the study are fundamental and vitally important in the diagnosis and treatment of many heretofore obscure and refractory systemic diseases. Roentgenograms of all dental septic conditions are shown and are replete with explanatory notes. At the end there is a complete bibliography. The book should be equally valuable to dentists and physicians.

A Manual of Histology. By Henry Erdmann Radasch, M.Sc., M.D., Assistant Professor of Histology and Embryology in the Jefferson Medical College. Cloth. Price, $2.50 net. Pp. 580, with 307 illustrations. Philadelphia: P. Blakiston's Son & Co., 1918.

Unnecessary theory and discussion have been avoided in this manual. The histology of the various tissues is described in systematic order. By arrangement of bold face type and italics the student may quickly refer to the descriptions which characterize the structure of any special tissue—an especially valuable feature when it is desirable to make a general review. The book is fully illustrated, with complete explanatory legends to each picture. The subject has been covered concisely, yet with sufficient thoroughness to make the book useful to the student who requires a more adequate presentation of the subject than is to be found in quiz compends, yet not so exhaustive as that given in the larger textbooks.

Cancer: Its Nature, Causes, Diagnosis and Treatment. By Robert Holmes Greene, A.M., M.D., F.A.C.S. Cloth. Price, $1.50. Pp. 172. New York: James T. Dougherty, 1918

This book discusses certain features of the topics mentioned in the title, for the most part conventionally, superficially and incompletely. The chief new matter is the emphasis laid on the observation by Dr. J. A. Killian that in the blood of cancer patients the total nonprotein sulphur content rises to two or three times the normal figure, while the total sulphates remain at the normal level. The urine shows an increase in the neutral sulphur compared to the oxidized sulphur, but the total amount of sulphur excreted is diminished. Considerable speculation as to etiology and treatment is indulged in on the basis of these changes in sulphur metabolism.

A Surgeon in Arms. By Captain R. J. Manion, M. C., of the Canadian Army Medical Corps. Cloth. Price, $1.50 net. Pp. 310. New York: D. Appleton & Co., 1918.

As a medical officer on the West Front, Captain Manion was particularly able to study the morale of the Allied army under the most adverse conditions. His book represents not so much a diary of his progress as a series of chapters on various phases of his work. It has not the fine finish of careful literary preparation; but readers of war books are asking merely for red blood and adventure, not "style." Captain Manion was in "it" and he tells about "it" in his own language.

Social Medicine, Medical Economics and Miscellany

THE RECONSTRUCTION OF THE RACE*

FREDERICK PETERSON, M.D.
New York

I will present some views on education from the standpoint of the alienist. Pathology has, after all, taught us the most we know about the normal in biology. We learned physiology from our studies of function perverted by disease. We learned about the normal brain through investigation of diseased brains. The admired Montessori method of teaching normal children had its origin in the methods of Itard and Seguin in teaching idiots. So now in a world half mad, with all sorts of disorders in the body politic, perhaps an alienist may help, be it never so little, in some new adjustment toward the normal.

We have been suddenly awakened by the war from our complacent slumber. Pain, suffering, danger, stirring elements in the psychologic mechanism, rouse alarm, quicken alertness, light up all the old memories and powers of defense.

The horror and surprise of a nation of madmen broken loose on the world has brought a sudden consciousness among the peoples. We are appalled that our selective draft of young men who are to fight our battles in France and Flanders reveal defects in an average of nearly 30 per cent.—these young men who were the schoolchildren of yesterday. What was the matter with the schools of yesterday which took them in and returned to us only two thirds as able-bodied citizens? The answer is found in the schools of today.

Authorities show us that there are physical defects in 75 per cent. of the 20,000,000 schoolchildren of today, most of them preventable and remediable, heart and lung diseases, disorders of hearing and vision, malnutrition, diseased adenoids and tonsils, flatfoot, weak spines, imperfect teeth—and among them 1 per cent. of mental defect. The children in country schools are worse off than in city schools. We are sending the best we have to foreign battle fields. We are retaining the 30 per cent. of imperfect citizens to leaven the race of tomorrow. There is such a thing as the prepotence of inferiority. It is often said that we get what we deserve in the way of government, laws and institutions. Since it is possible in our democracy for a moron to be elected mayor of a city, and an imbecile to be made governor of a vast state, it may easily be imagined how the smaller offices in our legislatures, county boards and city councils overflow with the inferior and the unfit.

We have spent millions of dollars on swine plague, foot and mouth disease of cattle, pine blister, chestnut blight, gypsy moth, chicken cholera, and we have the annual "pork-barrel" of millions on millions of dollars devoted to all sorts of trivial and foolish exploitations of rural creeks and hamlets; but what have we spent on our greatest national asset—health of body in our schoolchildren? Body is the foundation on which mental structure must rise. It is of the first importance that the physical foundation be made and kept sound and strong. The mental structure is secondary to that. We are spending enormous sums on medical care of our insane and other defectives in institutions all over the country, and rightly so, to do what we can to repair our broken adults. This is relief work; but what we spend on preventive measures, on health education for our growing children is small by comparison.

The children are the state's best property, outranking lands, produce, mines, waterpower, live stock, forests, railways. Think of the billions of dollars spent on these secondary interests. Think of the indifference and opposition to the care of children, to 2-cent lunches to be paid for by the children themselves, to doing away with child labor in factory and mine, to the smallest health measures demanded for their welfare. It needs, indeed, an alienist to direct attention to these facts.

Compulsory education we have—compulsory feeding and training of the mind. Compulsory health we must have—compulsory feeding and training of the body.

In the war against ignorance we have conscripted the schoolchildren. They are the vast draft army of our second line of defense. But in what sort of cantonments do we house them? What physical drill do we give them, what medical inspection and care, what sanitation, what remedial steps do we take to restore them quickly to the ranks when they are ill?

But enough of destructive criticism. Let us turn to the idea of a reconstruction of the race. Let us read the old books with new comprehension. It is almost a hundred generations ago that a teacher (Mencius) wrote:

> The root of the empire is in the state. The root of the state is in the family. The root of the family is in the individual. So for the people — encourage them; lead them on; rectify them, straighten them; help them; give them wings!

We must set a standard. It might be that of Dr. Oliver Wendell Holmes, "to begin the education of the child a hundred years before it is born." That can be attained in a few generations. To accomplish it we must coordinate all the organizations now at work for the conservation of our citizenry—the maternity classes, the baby-saving societies, the mothers' committees, the kindergartens, the child welfare and physical training bodies, the seaside, the countryside and sunshine associations, all that have to do with preschool welfare, the public and private schools, the Child Labor Committee, the Mental Hygiene Association, the boards of education and the boards of health. The presidents of boards of health and boards of education should be ex officio members of these coordinated boards. This is a great undertaking, but we can begin by breaking into the curriculum of the public schools and establishing education in health, especially in food knowledge and food habits as a vital and essential part of the teaching. From the schools the health instruction will be carried home to the parents and younger children, and soon the whole movement of reconstruction will permeate the state.

PROGRAM FOR RECONSTRUCTION

The program is a large one, with several requirements:

1. The teachers themselves should be given better conditions for their own health and fuller instruction in all that has to do with the laws of health.
2. Every city and country school should be made sanitary and kept so, and the school and its grounds should be as beautiful as possible, not only for the benefit of the teachers and the pupils, but as an example to all other citizens who are beginning to use the school more and more as a community center.
3. Every child should be regularly weighed, measured and examined and a health record kept, which should accompany him throughout his school life. It should be the duty of the authorities to see that the defects of our young citizens are corrected, and disorders of growth and nutrition remedied. As malnutrition is one of the most serious conditions, a hot luncheon should be made available for every child and every teacher. The health examination should include dental inspection and treatment.
4. Each school should have adequate provision for physical training, gymnasiums, athletic fields, playgrounds, gardens and shops, together with especially qualified instructors in physical training and vocational fields.
5. Finally, with the foregoing foundations, there should be a thorough system of instruction in all matters pertaining to health with special emphasis on health problems rather than on disease, in physical and mental habits, in personal hygiene, in public health and sanitation, in methods to avoid communicable diseases, in the responsibilities of parenthood, and in all that relates to nutrition and growth, including foods and food values and food habits.

This is a large program, too large for the inequalities of conscience and consciousness of our multitudinous states. It might be carried out in a few states soon and in others only after generations.

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* Read before the National Education Association, Pittsburgh, July 3, 1918.

This is a scheme for the reconstruction of the whole people. It is a federal program. It is an emergency program. It should have the immediate attention of our foremost teacher in the presidential chair. We need a Hoover for the children—a children's health administrator.

With all this in view and after months of careful planning, the National Child Health Organization has been formed, whose literature is being now distributed. Do the first practical thing for a beginning. The teachers can place scales and a measuring rod at once in every school and with the height and weight and age charts that will be sent on request, the campaign can be immediately started against one of the chief evils, namely, malnutrition. The Child Health Organization has some of the best teachers and educators in the country as members, and counts on its board the foremost medical specialists on children and public health. Its publications will be supplied on request to all who desire them. The office of the Child Health Organization is at 289 Fourth Avenue, New York. Dr. L. Emmett Holt is chairman. Some of the other medical members are Drs. S. McC. Hamill, G. R. Pisek, Victor G. Heiser, Thomas D. Wood, Bernard Sachs, Hermann M. Biggs, H. D. Chapin, Simon Flexner and William H. Welch. Among the educators are Charles W. Eliot, Cambridge, Mass.; Dean Thomas, Bryn Mawr, Pa.; Albert Shiels, Los Angeles; William Wirt, Gary, Ind., and John H. Finley, Albany, N. Y.

20 West Fiftieth Street.

PHYSIOCHEMICAL PROPERTIES OF PRODUCTS OF THE GROUP OF THE ARSENOBENZENES

Their Transformation in the Organism

In the *Annales de l'Institut Pasteur* (1917, **31,** 114-137), Danysz publishes the first instalment of the results from research work he has made on arsphenamin solution. He found that solutions of arsphenamin and similar preparations, prepared in the usual manner but with a small amount of calcium biphosphate added, soon change on exposure to the air and form precipitates which are readily soluble in sodium hydroxid. The solutions contained the arsenical in 1:5,000; calcium biphosphate 1:10,000, and sodium chlorid, 8:1,000. Danysz was impressed by the fact that the rate of precipitation depended on the amount of alkali used in making the solutions. He prepared solutions of luargol, which is essentially an antimony silver salt of the arsphenamin base differing from arsphenamin in its action only in minor details, as follows: Sodium hydroxid was added in amount sufficient (1) to form the monosodium salt, (2) to form a salt midway between the monosodium and disodium salts, (3) to form the disodium salt, and (4) one-half molecule of sodium hydroxid in excess. (The amount used in the second solution represents about the amount used, or perhaps a little more, in preparing the solutions for clinical use by most physicians.) When these solutions were allowed to stand in open tubes, the first became turbid within a few minutes, the second in from fifteen to twenty minutes, the third in from five to six hours, and the fourth only after more than twelve hours.

When injected into rabbits at the same rate, the monosodium solution (1) was found to be twice as toxic as the second solution, and the other two were less toxic than either of these. The hyperalkaline solution (4) caused pain on being injected; the veins sometimes became obstructed and later atrophied.

Danysz attributed the variations in toxicity to the precipitating out of the arsphenamin base in the blood stream, owing to the salts and carbonic acid present, just as it had been shown to do in test tube experiments. He found that in addition to the amount of alkali influencing the toxicity to a marked degree, the rate of injection also had a considerable influence. A dose of the monosodium salt that was certainly fatal if injected in one minute produced no ill effects when the injection was prolonged for fifteen minutes. He believed that the same explanation holds here, the base being precipitated in the latter case but slowly and in very fine particles. He also found that the amount of sodium chlorid used had a bearing on the rate of precipitation, and that even when used in the amount mentioned above it caused a more rapid precipitation. He concluded that an arsphenamin solution is colloidal in nature and behaves as such in the presence of sodium chlorid, and that the monosodium solution was more colloidal than the disodium solution, while neopreparations behave more as salt solutions.

Danysz concluded partly from experimental data and partly from theoretical considerations that when an arsphenamin solution is injected into the blood stream, the sodium is split off, allowing the base to be precipitated, and that in order for it to be eliminated by the kidneys, there must be first formed compounds of the arsphenamin base with organic bases present in the blood, which are soluble in neutral medium. He believes that when the initial precipitation is rapid, death occurs quickly in experimental animals when large doses are given, and that the so-called "nitritoid crises" may occur in man after the usual dose, the explanation of the mechanism being the same in the two cases, and that this does not represent a true toxic action of the drug in the usual sense. Examinations of animals dying under these conditions show hemorrhages, thromboses, etc., and precipitated drug in the blood. He refers to these accidents as crises of the first degree, and states that if they occur in a person having a normal blood composition, the preparation of the solution is at fault.

Transient crises, or what most physicians would describe as mild or moderate reactions, Danysz believes are explained by the same mechanism, as well as the delayed crises that are the most serious and often end fatally. In order of frequency, the transient are most common; the crises of the first degree are seen only occasionally, and never end fatally, while the delayed crises fortunately are rare, perhaps one in several thousand cases, and always occur after the second or some subsequent injection, and then not immediately but within from one to three days after the injection. He believes that here as well as in the less serious reactions the mechanism is the same, differing only in time and degree. The arsphenamin does not precipitate rapidly enough to cause immediate effects, but is not reformed into soluble organic compounds that can be eliminated. He believes that as a rule, and he has animal experiments that appear to prove it, the first injection in a measure vaccinates the organism, probably by causing an increased production of organic bases, making the subsequent doses better tolerated than the first.

From the practical standpoint Danysz recommends that the treatment be begun by a very small injection, and that the results following the second injection, which should also be small, be carefully observed. If this dose is tolerated as well as or better than the first, the treatment may be continued and the doses increased without fear of complications. Should this not be the case, the treatment should be discontinued for from eight to fifteen days, or several vaccinating doses should be given.

HEALTH MATTERS IN PORTO RICO

The report of the commissioner of health of Porto Rico, W. F. Lippitt, for 1917 is not a cheerful or encouraging document so far as health conditions in the island are concerned. Lack of funds for salaries, equipment, supplies and transportation, with intimations of too much politics in some instances, are said to account for a backward state of things. In the municipality of San Juan it is said the service of beneficencia municipal is well cared for, and there is a good hospital, while among the other first class towns Ponce deserves the severest censure for lack of proper organization and attention to the sick. At Arecibo the hospital is well managed, but outdoor relief is neglected. Guayama, a small town, has a well managed hospital, credit being due to the enthusiasm of the medical inspector. Yauco and Humacao have good hospitals and good outdoor relief. Of the other towns of the island nothing good can be said. The salaries of municipal physicians range from $50 to $100 a month, with no chance to earn additional income outside. The hospital situation of the island is summed up thus: "The so-called hospitals of the island, outside of those already specified, are so exceedingly bad, so unfitted for the reception of the sick, so lacking in everything needed for a hospital, that the sick prefer to die at home rather than to be taken to the hospital." Nevertheless, many sick are taken from the surrounding country and towns to hospital towns and left there, compelling the municipal authorities to take them in, thus throwing an unjust charge on the taxpayers. This is true of San Juan, which is especially mentioned. The health commissioner again calls attention to the alarming spread of tuberculosis and to the inadequacy of the appropriations to make any impression on this disease. More power for the health commissioner and greater appropriations, or funds raised by apportioned taxes, are essential to make any headway against this disease. The work against hookworm anemia is not being kept up as it should be for the same lack of funds and facilities. The remedy for the conditions described, the health commissioner says, is the organization of a bureau of charities under the department of health to have entire charge of the treatment of the sick in hospitals and outdoor relief. If this is not possible, with the exception of the municipal hospital of first class towns, all hospitals should be placed under the control of the department of health and sustained by funds secured by assessment from these municipalities. Furthermore, district hospitals should be organized, under the control of the department of health maintained by the insular government.

Medicolegal

Direction of Verdict to Sufficiency of Proof Under Medical Practice Act

(State Board of Medical Examiners v. Giedroyc (N. J.), 102 Atl. R. 906)

The Supreme Court of New Jersey, in affirming a judgment of conviction of the defendant of practicing medicine and surgery without a license, in violation of Section 10 of the Medical Practice Act, as amended in 1915, holds that there was no error in directing a verdict for the plaintiff. A proceeding under that section is essentially a "civil suit," subject to the procedure peculiar to the civil jurisdiction of the court in which it is brought, and it is competent for the trial judge to direct a verdict for the plaintiff when the admitted facts conclusively show that the defendant violated the statute as charged. And sufficient was proved in this case. While under the statutory definition of the practice of medicine and surgery, which appears in section 8 of the act, the different acts or course of conduct which constitute the practice of medicine and surgery are stated in the disjunctive, the general rule is that where an offense may be committed by the doing of one of several things, the indictment may, in a single count, group them together by using the conjunctive "and" where "or" occurs in the statute, and so charge the defendant with having committed them all, and a conviction may be had on proof of any one of these things without proof of the commission of the others. So under sections 8 and 10, a complaint may charge that the defendant did, without license, practice medicine and surgery, in that he "did hold himself out as being able to diagnose, treat, operate and prescribe for a human disease, and did treat and prescribe for the same by means of a medicine," and thereunder the defendant may be convicted on proof of such holding out without proof of treatment and prescription by means of medicine. Consequently, if the admitted facts in this case conclusively showed that the defendant held himself out as being able to diagnose, treat, operate and prescribe for human diseases, the direction of a verdict was proper without regard to whether the undisputed evidence showed that he did actually treat and prescribe for such disease by means of a medicine. Now the plaintiff's testimony, so far as essential to a conviction, was corroborated by the defendant himself. The defendant admitted that he was a chiropractor; that he practiced hydropathy and naturopathy; that he made his living by treating people who were ill by the methods known as chiropractic, hydropathy and naturopathy; that in order to treat them he first diagnosed their disease or illness and then gave them treatments consisting of manipulations, or electric or vapor baths. He admitted diagnosing one Sweth's illness, admitted receiving $75 from Mrs. Sweth in advance for the treatment to be given Sweth, and did not deny that he told Mrs. Sweth that her husband was a very sick man, but that he, the defendant, could cure him if witness would pay him $75. This showed conclusively that the defendant held himself out, not only as being able to diagnose and treat the disease from which Sweth was suffering, but as being able to diagnose and treat human disease generally.

Valid Law and Regulation for Protection of Water Supply.

(Commonwealth v. Hyde (Mass.), 118 N. E. R. 643)

The Supreme Judicial Court of Massachusetts, in considering the statute of that state which empowers the state board of health to "make rules and regulations to prevent the pollution and to secure the sanitary protection of all such waters as are used as sources of water supply," with power to delegate the granting or withholding of permits to water commissioners, subject to investigation and revision by way of appeal to the board itself, holds that the delegation by the legislature of the right to make rules and regulations is within its power. The case is different from one wherein no power of delegation is conferred by the statute. The power of revising the conduct of the water commissioners reserved to the state board of health by the statute avoids the difficulty of vesting an untrammeled discretion in a subordinate board or officer.

The state board of health pursuant to the statute passed a regulation of which the pertinent part here was:

> No person shall . . . unless permitted by a written permit of the board of water commissioners of the city of Haverhill fish in . . . Crystal Lake . . . so called in the city of Haverhill, . . . said lakes . . . being used by said city as sources of water supply.

The court is of the opinion that the regulation passed by the state board of health, in pursuance of the statutory authority, prohibiting fishing on a body of water used as a source of water supply for a municipality, cannot be pronounced unreasonable. It requires no discussion to demonstrate that the preservation of the purity of the water supply for the domestic uses of the people is within the police power. The absolute prohibition of fishing on such a source of water supply could not be said to be unreasonable under the circumstances here disclosed. It is not irrational for a public board to deem it likely or possible that sources of contamination and germs of disease might have a causal connection with the presence of fishermen on the ice or waters of a supply of drinking water.

Wherefore, the court overrules exceptions to a conviction of the defendant, who was charged with going on the ice of Crystal Lake and fishing therein, without a written permit of the water commissioners of the city of Haverhill, in violation of the rules and regulations of the state board of health.

Insanity and Not Intoxication a Defense to Crime

(McCarter v. State (Okla.), 170 Pac. R. 712)

The Criminal Court of Appeals of Oklahoma, in affirming a judgment of conviction of defendant McCarter of assault with intent to kill, holding that the evidence offered by him to prove alcoholic insanity was insufficient, reaffirms what it has said before, that insanity, though superinduced by excessive and long-continued indulgence in alcoholic liquors, and known as "delirium tremens," or "mania à potu," renders a person so afflicted irresponsible for his acts, if it be of such a character as to deprive him of the mental capacity to distinguish between right and wrong, as applied to the particular act, whether he be under the influence of liquor at the time of the commission of the act or not; but, to do so, his affliction must be settled or fixed insanity, not a mere fit of drunkenness. A person, not previously laboring under such a disease or affliction, who voluntarily becomes intoxicated to such an extent and for such a period of time as to cause unconsciousness of his acts, is not irresponsible under the law for the acts done by him while in such mental condition.

Society Proceedings

COMING MEETINGS

Am. Assn. of Electro-Therapeutics and Radiology, Boston, Sept. 10-12.
Am. Assn. of Obstetricians and Gynecologists, Detroit, Sept. 16-18.
Am. Roentgen Ray Society, Ft. Oglethorpe, Ga., Sept. 4-6.
Colorado State Medical Society, Estes Park, Sept. 9-11.
Delaware State Medical Society, Wilmington, Oct. 8.
Indiana State Medical Association, Indianapolis, Sept. 25-27.
Kentucky State Medical Association, Louisville, Sept. 3-6.
Minnesota State Medical Association, Duluth, Aug. 28-30.
Missouri Valley Medical Society, Omaha, Sept. 19-20.
New Mexico Medical Society, Albuquerque, Oct. 7-8.
Ohio State Medical Association, Columbus, Oct. 1-3.
Pennsylvania State Medical Society, Philadelphia, Sept. 23-26.
Tri-State District Medical Society, Madison, Wis., Aug. 20-22.
Utah State Medical Association, Salt Lake City, Sept. 10-11.
Vermont State Medical Society, Burlington, Oct. 10-11.
West Virginia State Medical Association, Harpers Ferry, Oct. 1-3.
Wisconsin State Medical Society, Milwaukee, Oct. 2-4.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Medical Sciences, Philadelphia

July, 1918, **156**, No. 1

1 *Ancient Factors in Relations Between Blood Plasma and Kidneys. A. B. Macallum, Toronto.—p. 1.
2 *Typhoid Vaccine in Case of Typhoid Spine. W. Allan and J. W. Squires, Charlotte, N. C.—p. 11.
3 Electrocardiographic Evidence of Abnormal Ventricular Preponderance and of Auricular Hypertrophy. P. D. White and A. V. Bock, Boston.—p. 17.
4 Cholesterohydrothorax; Report of Case. B. F. Weems, Jr., New York.—p. 20.
5 Chemotherapy (Potassium Cuprocyanid) of Leprosy and Tuberculosis. T. Sugai, Osaka, Japan.—p. 30.
6 *Status Lymphaticus. D. Symmers, New York.—p. 40.
7 Study of Ochronosis. N. W. Janney, New York.—p. 59.
8 Relation of Physical Signs to Roentgen Plate in Pulmonary Tuberculosis. J. J. Singer, St. Louis.—p. 68.
9 Case of Congenital Absence of Uterus with Anomalous Vulvovaginal Anus. E. J. Strick, Chicago.—p. 75.
10 Clinical Experience with Koga's Cyanocuprol. T. I. Masuda and T. K. Matsuda, Japan.—p. 78.
11 Vaginal Metastases of Hypernephroma; Report of Case. G. Gellhorn, St. Louis.—p. 94.
12 *Report of Thirty Cases of Meningococcic Cerebrospinal Meningitis. G. McConnell, M. L. Morris and N. A. Seehorn, Camp Pike, Ark.—p. 105.

1. **Blood Plasma and Kidneys.**—Macallum made investigations on the inorganic composition of normal human plasma, with a view to comparison of the same with the blood plasma in cases of Bright's disease, and, more especially, in cases of puerperal eclampsia. Thus far he has found that the very first change from the normal to the definitely established primary condition in some of the forms of Bright's disease is a loss of the power to maintain the paleo-oceanic ratios. The structures in the kidney involved in maintaining these ratios are the proximal convoluted tubules, which, with the glomeruli, are derived from and therefore represent the original parts of the kidney of the earliest vertebrates and of the protovertebrates. The proximal convoluted tubules are also concerned in reducing the H-ion concentration of the blood, for they secrete acid, not acid salts, into the urine, a function which is also very ancient, a function performed in invertebrates by all the cells of the body situated near the body surface, and still performed intermittently and with a high degree of specialization by the gastric glands of vertebrates. In some invertebrates other tissues have specialized in this matter also, as for example, in the salivary glands of the carnivorous mollusk *Dolium galea*, the concentration of the sulphuric acid of the saliva of which exceeds 4 per cent.

Macallum suggests the possibility that the function of preventing the ever-tending-to increase of the H-ion concentration of the blood plasma is as ancient as the paleo-oceanic function, a view which their common localization in the proximal tubules supports. The author emphasizes the view that behind the functions of the renal organ is a history which links up the human body with the far past with an age of the earth when its oceans contained only what would now be regarded as brackish water and the earliest type of vertebrate life was beginning to appear as a marine form. From the facts advanced it will be gathered also that the blood plasma, so far as its inorganic salts are concerned, is but a reproduction of the remotely ancient ocean, and that it is an heirloom from the life in "that immortal sea which brought us thither," for the sea is the original home of all life on the globe and gave our blood, and, accordingly, the tissues of our bodies, a character that long ages have not effaced and will not efface.

2. **Typhoid Vaccine in Typhoid Spine.**—Allan and Squires suggest that from the clinical history of typhoid spine it seems probable that typhoid vaccine given early, would stop the development of this local infectious spondylitis.

6. **Status Lymphaticus.**—In Bellevue Hospital, in the past twelve years, 457 cases of status lymphaticus were encountered among 5,652 necropsies (8 per cent.). In the first 4,000 necropsies there were 249 cases. These have been analyzed, statistically and otherwise, and form the basis of Symmers' paper. The proportion of males to females was about 6 to 1. One hundred and sixty occurred between the ages of 21 and 50. Of the 249 cases, there were 118 instances of status lymphaticus, 89 cases of recessive status lymphaticus and forty-two cases in which the lymphoid tissues were in places hyperplastic, in other places atrophic, in other words, borderline examples, which, however, were tending in the direction of regression. Of the 118 cases of well developed status lymphaticus the thymus gland was hyperplastic in every instance. In the 89 cases of recessive status lymphaticus the thymus was weighable in 19 cases only. In the remaining 70 cases the thymus was practically invisible to the naked eye and its position was occupied by a pad of fat or by fat and scattered glandular remnants, the whole corresponding in a general way, to the normal outlines of the gland. In the 118 cases of well developed status lymphaticus the faucial tonsils were hyperplastic sixty-one times (51 per cent.), the lingual tonsils fifty-eight times (49 per cent.) and the pharyngeal tonsils forty-five times (37 per cent.). Peyer's patches and the solitary follicles were each hyperplastic in 105 cases (88 per cent.), sometimes in combination, at other times independently. The spleen was described as small or normal in size in 68 cases (70 per cent.). In 26 cases the spleen was enlarged, but in all of them contributing factors were found to account for the enlargement, such as cirrhosis of the liver, sepsis, enteric fever, etc.

The splenic lymphoid follicles were hyperplastic in 105 cases (88 per cent.). The mesenteric lymph nodes were enlarged in 7 cases only, the axillary nodes eleven times, the inguinal nodes twelve times, the cervical nodes fifteen times and the peribronchial nodes five times. In 89 cases of recessive status lymphaticus the faucial tonsils were enlarged twenty-five times (28 per cent.), the lingual tonsils thirty-two times (36 per cent.), the pharyngeal tonsils nineteen times (21 per cent.). Peyer's patches were enlarged eleven times (12 per cent.) and the solitary follicles nineteen times (21 per cent.). The spleen was described as normal or small in 52 (71 per cent.); enlarged in 21 cases, in 17 of which enlargement was due to some accompanying lesion, such as chronic valvulvar disease, cirrhosis of the liver, etc. The splenic follicles were hyperplastic in 37 cases (41 per cent.). Of the 249 cases, the heart was small or normal in size in 127 (51 per cent.). In 46 cases the heart was enlarged, due, in every instance, to inherent valvular disease or to chronic interstitial nephritis, emphysema and similar causes. The aorta was hypoplastic in 101 cases (40.5 per cent.). In 78 cases (31 per cent.) the elasticity of the aorta was increased and in 66 cases (26.5 per cent.) the vessel was described as unusually thin.

There were thirty-seven instances (about 15 per cent.) in which anatomic changes due to syphilis were detected in various parts. The aorta was the seat of syphilitic lesions in fifteen instances (40 per cent.). In 4 cases the aorta from commencement of bifurcation was the seat of syphilitic aortitis, in 9 cases the changes were advanced but were limited to the arch, in 1 case there was syphilitic aortitis of the arch and thoracic aorta and in 1 case a small aneurysm of the sinus of Valsalva was imposed on a limited syphilitic aortitis of the ascending aorta. Acute gelatinous aortitis: In the 249 cases of status lymphaticus there were 15 cases of the acute gelatinous aortitis described by the French.

Sudden death due to spontaneous rupture of a hypoplastic cerebral artery occurred seven times (three times in men and four times in women), all of them under 30 years of age, none of them presenting syphilitic or precocious arteriosclerotic changes in the vessels of the brain or elsewhere. The clinical symptoms were those of cerebral hemorrhage and death occurred rapidly. There were 88 cases of endocarditis (35.3 per cent.), of which number 51, or 57.8 per cent., were acute. It seems scarcely possible to evade the conclusion that status lymphaticus is a distinct predisposing factor in those infective processes which exert a selective action on the heart valves and in which, in many cases, the provocative micro-organism enters the body through the tonsils.

12. **Cases of Meningococcic Cerebrospinal Meningitis.**—In order of frequency the subjective symptoms in these cases were as follows: (1) profound frontal headache; (2) stupor or coma; (3) rigidity of the neck; (4) vomiting; (5) Kernig's sign; (6) increased knee jerks; (7) hyperesthesia; (8) slow pulse; (9) petechiae; (10) slight increase in temperature. Strabismus was not present as an early symptom. The headache was very severe in character, being much more marked than in typhoid, and nearly always was frontal. In regard to the mental condition, there were all variations from an almost abnormal acuteness to complete coma. Rigidity of the neck was, as a rule, well marked and accompanied by more or less retraction. Vomiting occurred in about two thirds of the cases and was of the projectile or cerebral type, coming without warning and without previous nausea. In a few of the cases it was the initial symptom.

Kernig's sign was positive in nearly every case, either slight or well marked, according to the general condition of the patient. The knee jerks were exaggerated in most of the cases, as were the plantar reflexes. Babinski's sign was absent in practically every case. Hyperesthesia was present in many intances to a high degree and at times the skin showed marked irritability, as evidenced by positive "tâche cérébrale." The pulse in nearly every case was slow, commonly between 60 and 70, and not unusually it was in the fifties. Petechiae were present in but a small percentage of the cases, being marked in but three. Generally the distribution was diffuse, with variations in size and shape and not disappearing on pressure. The temperature has not been high, particularly early in the disease. Herpes appeared in practically all of the cases and was abundant, usually most extensive on the lips at the mucocutaneous junction. The ears, nose and forehead were involved also.

All of the patients as soon the lumbar puncture was done, and either a cloudy fluid discovered or a positive globulin obtained, were given, as a rule, 40 c.c. of serum. According to the authors' experience it would appear unnecessary to give the serum more frequently than at twenty-four-hour intervals, excepting in those fulminating forms when death seems imminent. One patient received four injections within thirty-six hours and showed improvement after each treatment. Many of the patients will need no further serum after the fourth dose, yet it may be well to make a puncture at the end of forty-eight or seventy-two hours later to determine the pressure, the quality and quantity of the fluid and the globulin reaction. If the patient does not show improvement it may be necessary to continue the lumbar punctures until recovery or death ensues. In one case, which finally proved fatal, twenty-three lumbar punctures were made. The following signs of improvement were considered of value in the order given, and on them was based the prognosis of the case: (1) improvement in the consciousness of the patient; (2) fall in temperature to nearly normal; (3) diminution in intensity of headache; (4) no decrease or marked increase in the pulse rate; (5) no increase in the rigidity of the neck; (6) decrease in the globulin.

American Journal of Orthopedic Surgery, Boston

July, 1918, **16**, No. 7

13 Orthopedic Surgery and War. J. L. Porter, Chicago.—p. 413.
14 Rôle of Orthopedic Surgery in Modern Warfare. C. L. Starr, Toronto, Canada.—p. 415.
15 Special Training Battalion of 26th Division, A. E. F. Z. B. Adams, Boston.—p. 427.
16 *Inefficiency Due to Back Strain and Faulty Posture in Unseasoned Troops. D. P. Willard, Philadelphia.—p. 429.
17 Curative Workshops in British Military Orthopedic Hospitals. R. W. Billington, Nashville, Tenn.—p. 431.
18 Re-Education in Functional Disabilities of Active War Service. W. W. Plummer, Buffalo.—p. 433.
19 Some Aspects of Massage Problem. M. Sanderson, Boston.—p. 436.
20 Ward Occupational Therapy for Military Hospitals. H. R. Hayes.—p. 438.
21 Mechanotherapy: Functional Re-Education. E. A. Bott, Toronto, Canada.—p. 441.
22 Problem of Chronic Disabilities of Soldier. F. J. Fassett, Seattle. p. 446.
23 Etiology of Flattening of Upper Femoral Epiphysis; Study of Seventy-Five Personally Observed Cases. A. T. Legg, Boston.—p. 448.
24 Tendon Operations About Ankle for Deformity After Infantile Paralysis. S. Kleinberg and I. Zadek, New York.—p. 452.
25 Orthopedic Work in British General Hospital in France. W. J. Taylor.—p. 464.

16. **Back Strain and Faulty Posture in Unseasoned Troops.**—In contrast with the number of weak and painful backs among the comparatively untrained men of the American forces, the examination of the veteran troops of the British Expeditionary Force is most interesting. Willard, acting as surgeon in one of the large orthopedic bases of Great Britain for seven months, came in touch with 7,000 soldiers who were sent there for orthopedic treatment. Of all these cases there were only four of back trouble. Three of these were unquestionably due to toxic arthritis of the spine or sacro-iliac joints. The fourth case was due to faulty posture. The surgeons of the Royal Army Medical Corps who had served with the British Expeditionary Forces were unanimous in stating that inefficiency from back strain among well trained and well seasoned troops was very uncommon.

American Journal of Public Health, Boston

July, 1918, **8**, No. 7

26 Safe Limit of Carbon Dioxid in Working Atmosphere. G. O. Higley, Delaware, Ohio.—p. 477.
27 Maternity and Infant Welfare Program for United States. J. H. Larson, New York.—p. 482.
28 Sanitary Moisteners for Postoffice Lobbies. W. E. Forsyth, Ann Arbor, Mich.—p. 487.
29 Study of Pellagra in Mortality Experience of Metropolitan Life Insurance Company, 1911-1916. L. I. Dublin, New York.—p. 488.
30 Bactericidal Efficiency of Soap Solutions in Power Laundry. H. G. Elledge and W. E. McBride.—p. 494.
31 Effect of Plankton Animals on Bacterial Death Rates. W. C. Purdy, Lonoke, Ark., and C. T. Butterfield, Washington, D. C.—p. 499.
32 Filing System for Public Health Literature. R. R. Harkness, York, Maine, and C. E. Turner, Boston.—p. 522.

Archives of Diagnosis, New York

July, 1918, **11**, No. 1

33 Vestibular Nerve Function. J. Byrne, New York.—p. 1.
34 Polyneuritis and Hyperesthesia in Poliomyelitis, and Differentiation of Polyneuritic Form of that Disease from Postdiphtheritic Paralysis. J. C. Regan, New York.—p. 11.
35 Ocular Complications in Renal Diseases; Their Diagnostic and Prognostic Value. A. Brav, Philadelphia.—p. 29.
36 Diagnostic Data of Commoner Eruptive Diseases. W. L. Somerset, New York.—p. 34.
37 Rachiocentesis and Spinal Fluid. J. H. Barach, Pittsburgh.—p. 48.
38 Diagnosis of Syphilis of Nervous System. J. H. Lloyd, Philadelphia.—p. 56.

Boston Medical and Surgical Journal

July 25, 1918, **179**, No. 4

39 *Present Needs of Tuberculosis Campaign in Massachusetts. J. B. Hawes, 2nd, Boston.—p. 123.
40 Epidemiology of Typhoid in New England City. D. M. Lewis, New Haven, Conn.—p. 127.

41 *Clinical Method of Collecting Expired Air for Determination of Alveolar Carbon Dioxid Tension. P. Roth, Battle Creek, Mich. —p. 130.

39. **Present Needs of Tuberculosis Campaign.**—The three great needs of the tuberculosis campaign in Massachusetts, according to Hawes are: (1) Intimate knowledge of the amount of tuberculosis; (2) equally intimate knowledge of machinery and equipment against it; (3) cooperation of all forces, public and private, municipal and state. Nearly 5,000 persons in Massachusetts die of pulmonary tuberculosis each year, which means that there are fully 10,000 patients in the active stages of the disease needing adequate care and treatment. The duty of a local board of health or private physician is not ended when a patient is admitted to a state sanatorium or to a local tuberculosis hospital. The care and supervision of discharged sanatorium patients is one of the most important lines along which progress can be made. Hawes emphasizes that it is the duty of every one of us to *help to develop public opinion to the point when the dangerous and incorrigible consumptive can be accorded the treatment* which he deserves. We must not, however, allow public opinion to reach the point where every person who is unfortunate enough to contract tuberculosis is looked on as a leper and ostracized from society; finally, Hawes would urge that we remember at all times, and particularly those who are doing purely administrative work, that we are dealing with human beings who happen to have pulmonary tuberculosis, and not merely with "cases."

41. See The Journal, July 31, 1915, p. 413.

Bulletin of Medical and Chirurgical Faculty of Maryland

March, 1918, **10**, No. 3

42 Practitioner and Deputy State Health Officer. E. A. Jones.—p. 38.

Iowa State Medical Society Journal, Des Moines

July, 1918, **8**, No. 7

43 Symposium on Pediatrics. L. H. Branson, Iowa City.—p. 233.
44 Physician in the Army. L. Schooler, Des Moines.—p. 235.
45 Etiology and Serum Treatment of Epidemic Poliomyelitis. J. W. Nuzum, Chicago.—p. 237.
46 Radium in Treatment of Carcinoma of Uterus. L. L. Myers, Iowa City.—p. 246.

Journal of Cutaneous Diseases, Chicago

July, 1918, **36**, No. 7

47 So-Called Porokeratosis (Mibelli), with Special Reference to Its Histopathology. S. I. Matsumoto, Kyoto, Japan.—p. 379.
48 *Annular Macular Syphilis:* Case Occurring as Early Secondary Manifestation. J. J. Rothwell, New York.—p. 395.

Kansas Medical Society Journal, Topeka

July, 1918, **18**, No. 7

49 War Experiences in *German* Base Hospital. H. M. Richter, Chicago.—p. 159.
50 War Experiences in British Base Hospital in *Northern* France. J. M. Neff, Chicago.—p. 160.
51 Needs of Medical Corps. J. N. Jackson, Kansas City, Mo.—p. 162.
52 Training of Civilian Physician *for Army* Service. W. N. Bispham, Fort Riley.—p. 167.
53 Organization and Fraternity. J. W. Helton, Hillsdale.—p. 170.
54 War's Aftermath—Legitimate Surgery. *F. A. Harper*, Pittsburgh. —p. 173.

Laryngoscope, St. Louis

July, 1918, **28**, No. 7

55 Otitic Meningitis. E. B. Dench, New York.—p. 501.
56 *Ear Protectors. C. W. Richardson, Washington, D. C.—p. 514.
57 Bacteriologic and Clinical Aspects of Infection of Accessory Sinuses of Nose. J. W. Babcock, New York.—p. 527.
58 Case of Chronic Middle Ear Suppuration, Treated by Carrel-Dakin Method, Following Radical Operation. P. D. Kerrison, New York.—p. 537.
59 *Consideration of Asthma from Wider Aspect. H. L. Pollock, Chicago.—p. 543.
60 *Trichloracetic Acid in Vincent's Angina. T. J. Gallaher, Denver. —p. 551.

56. **Ear Protectors.**—The Section of Otolaryngology Medical Department, U. S. Army, of which Richardson is chairman, made a thorough and careful investigation of various devices that have been invented for the purpose of lessening the severity of the concussion impact. These devices have been tested on the living animal; and also rather imperfectly on the human subject. There are three important features *in the device: first, applicability;* second, safety; third, cheapness. All types of hard and metallic forms of protectors are dangerous, because in cases of gunshot wounds, shrapnel wounds about the auricle or canal, they are likely to become secondary foreign bodies. Therefore, the examiners feel very much inclined to eliminate mechanical devices, such as the Wilson-Michaelson and the Mallock-Armstrong. Some of *the cheapest, while fairly good protectors, should be ruled out, because they cut off the conduction of air sounds too greatly.* The examiners are convinced that they have found one actual protector in what is known as the British Tommy. This device is simple, easy to introduce, and causes no undue pressure, and is easy to remove. While it cuts down the hearing, it does not cut down sufficiently to impair the voice beyond military needs. It prevents impact of concussion on the membrana tympani, the conducting apparatus; it is safe; *there is no possibility of forcing it in against the membrana tympani; it is not likely to be any more conducive to secondary foreign bodies than anything that could be worn in the war;* and it is comparatively cheap. In all tests it has proved itself the best protector.

The next most satisfactory is the Mallock-Armstrong. The only objection to the Mallock-Armstrong is the fact that it is made out of hard rubber, and is apt to become secondary point of foreign body injuries. In other respects it is nearly as good as the Tommy. It is not as easy to introduce as the former device. *The Baum device is very simple; very easily introduced into the ear; not so easily removed.* It can be worn for longer or shorter period without causing any inconvenience to the patient. It is light in weight, and there are practically no dangers attending on its wearing as regards secondary foreign bodies. It is not nearly as good as the other two mentioned. It does not present the fine degree of prevention as do the others to concussion impacts; but it is an American invention, and can be bought at a very reasonable price.

The *Wilson-Michaelson device is planned somewhat on the* type of the Mallock-Armstrong. It has a movable valve, which has been demonstrated under experimentation not to move as freely as it should with the detonations with which the committee experimented. Under more forceful concussion, such as takes place in actual warfare, it might respond more favorably. It has the advantage of being a perfect conductor for the voice. *It has the disadvantage of being made of hard rubber, and therefore possesses, the danger of secondary foreign body injury. It is from experimentation* a little difficult to wear, and for longer wear it would be inconvenient. Cotton, saturated with glycerin or petrolatum is the cheapest of all; most available, easy to obtain, constantly at hand. It is practically within the reach of every soldier. Soldiers are very much inclined to use cotton in the dry state. It is only *in the wet state* that it is of any value to prevent shock concussion. This wetting should be done preferably with glycerin or with pertrolatum. Either one impairs the conduction of sonorous sound waves. Therefore, while it is the cheapest, the most easily available, one that is most likely to be used, it has the disadvantage of deafening the wearer more than any other.

59. **Cause of Asthma.**—Pollock believes that *the underlying causative factor of asthma is undoubtedly a disharmony in the ductless gland system.* The exciting factor varies: dust, pollens, excreta from animals, split proteins, poisoning, etc., but unless there exists a disharmony in the ductless glands, asthma cannot result.

60. **Trichloracetic Acid Specific in Vincent's Angina.**—Trichloracetic acid is termed Vincent's angina by Gallaher. It should be applied pure, as follows: A small applicator, such as used by nose, throat and ear men, is wound with *cotton and dipped in the pure liquid acid.* The excess is removed by touching it against an ordinary blotter, and the acid is carefully applied to the entire area affected. In case of the tonsils, the acid should be carried on a *thin applicator* to the depth of each crypt involved, in addition to the surface application. After the parts are turned white it should be *neutralized in one or two minutes* by the application of a

saturated solution of sodium bicarbonate. The application of the acid and its neutralization may be repeated in two or three days if necessary. The results will be dependent on the thoroughness of the application. Gallaher has rarely found it necessary to make over two applications. An excess of acid must not be used, and none must be permitted to fall into the larynx.

Medical Record, New York

July 27, 1918, **94**, No. 4

61 Medical Women, Yesterday and Today. S. J. McNutt, New York. p. 135.
62 Protein Treatment of Arthritis. S. P. Beebe, New York.—p. 139.
63 Hay Fever Pollen Extracts and Their Standardization. W. Scheppegrell, New Orleans.—p. 141.
64 Hereditary Syphilis. W. S. Reynolds, New York.—p. 142.
65 Relation of Proteins in Food to Cause of Disease. R. C. Brown, Milwaukee, Wis.—p. 145.
66 Case of Circumflex Nerve Paralysis Following Carbuncle. L. F. Herz, New York.—p. 149.

Neurological Bulletin, New York

June, 1918, **1**, No. 6

67 *Case of Juvenile Paralysis Agitans; Primary Atrophy of Pallidal System of Corpus Striatum. J. R. Hunt, New York.—p. 237.
68 *Case of Wilson's Disease—Progressive Lenticular Degeneration. F. Tilney and G. M. McKenzie, New York.—p. 243.
69 Case of Food Poisoning of Type Known as Botulism. M. Grossman, New York.—p. 260.
70 Supra-Optic Canal in Its Relation to Interpretation of Choked Disk. F. Tilney, New York.—p. 265.

67. **Juvenile Paralysis Agitans.**—Hunt's patient is 39 years of age. Except for the nervous manifestation, she enjoys very good health. Her family history is negative, as is also her personal history, blood and Wassermann. Her illness began twenty years ago. The first symptom was a cramp, or a sensation of cramp, in the right foot. This cramp was not constant; it only appeared when she was tired or toward the end of the day when the muscles felt stiff and rigid. In the morning when she awoke from sleep the cramp had disappeared. This symptom continued for some time and gradually increased in severity so that eventually the evening cramp became a permanent stiffness in the foot and leg. For several years, or until she was about 23 years old, the disability was limited to stiffness and weakness of the right foot and leg. At this time the right hand began to tremble. The tremor of the hand came on very gradually and was not constant. It appeared at certain times only and then without apparent reason would disappear. Little by little, however, it became a fixture so that in time there was present almost constantly a marked trembling which became more and more marked as the disease progressed. When she was about 30 years of age the first evidence of trouble appeared on the left side. First there was stiffness on moving the leg, and this was followed by a tremor of the hand and arm. The progress, however, was not much more rapid, probably because the disease was well established, and the degenerative tendency well under way. It is interesting to note that for three years the distribution of the rigidity and tremor was of the hemiplegic type, a not uncommon observation in the juvenile as well as the senile and presenile forms of the disease. The patient has had no special trouble in masticating or swallowing food. The speech, except for slight tremulousness under excitement, is normal. She has had no pains and no paresthesias. With the exception of the motor disability, namely, weakness, rigidity and tremor, she is quite well and enjoys excellent health. Her mind is perfectly clear, there is no loss of memory, and she is quite cheerful in spite of the chronic and serious nature of her malady.

68. **Progressive Lenticular Degeneration.**—The past and family history of this patient, a boy, 15 years old, were negative. He developed, without discoverable cause, severe nervous symptoms which grew progressively worse until his death, seventeen months after the onset. The chief symptoms were a tremor, increased by voluntary movements, hypertonicity of the musculature generally, loss of strength, dysarthria, and toward the end, dysphagia, impairment of bladder and sphincteric rectal control and vasomotor irritability. Physical signs of sensory disturbance were not present. The reflexes were normal. Clearly, this was a case of a motor disturbance with an intact pyramidal system. The patient's condition grew steadily worse and a terminating bronchopneumonia was the final event. The chief lesion at necropsy was an advanced cirrhosis of the liver with slight, though definite changes, in the lenticular nucleus of each side. Syphilis was ruled out by the negative history, negative Wassermann, absence of spirochetes in liver, and absence of any other positive evidence.

New York Medical Journal

July 27, 1918, **108**, No. 4

71 Modern Obstetric Technic. G. L. Brodhead, New York.—p. 137.
72 Epileptic Attack in Dynamic Pathology. S. E. Jelliffe, New York.—p. 139.
73 Clinical Value of Pupillary Changes. A. Brav, Philadelphia.—p. 143.
74 Ileocecal Insufficiency. M. A. Ramirez and J. P. Hoguet, New York.—p. 146.
75 Surgical Diagnosis. W. F. Fowler, Rochester.—p. 148.
76 Diagnostic Hints in Gastro-Intestinal Diseases. R. Finkelstein, Brooklyn.—p. 150.
77 Some Surgical Problems and Principles. M. Behrend, Philadelphia.—p. 153.
78 *Food Value of Meat. E. H. Nies, New York.—p. 156.
79 Diabetes among Troops. C. G. Cumston, Geneva, Switzerland.—p. 157.
80 Psychology of War. J. M. Beck, New York.—p. 159.
81 Trench Fever. A. Lambert, New York.—p. 159.

78. **Food Value of Meat.**—Nies, who is associate editor of the *Hotel Gazette*, says there are a thousand and one dishes of which each one is in itself a well balanced meal, and in addition is appetizing and nourishing. They can, even at the present high costs, be prepared for a reasonable price. They are made by a combination of a small portion of meat with a larger quantity of grain, cereal, or other farinaceous substances, or vegetables. They are flavored from their essential ingredients so that their preparation requires no high order of culinary skill. With a judicious use of the ordinary fireless cooker they can be prepared in the morning, put in the cooker, and taken out ready to serve when the family returns in the evening; thus releasing poor women from the bondage of the cook stove, and, in addition, providing the family with better food than could be prepared by the old hurryup way, which is so wasteful of material, and consumes so much time. These dishes are prepared so that all the substance of each ingredient is conserved for consumption. The shrinkage instead of evaporating into the air is absorbed by the parts of the combination and saved to the consumer. The pleasure which is derived from eating is established first by sight, second by taste and smell, and lastly by the feeling of satisfaction after eating which brings with it relaxation of mind and body. If food can be so prepared that it brings about all these things, and that with the homely means at the command of every housewife, much can be saved by thus abolishing the necessity of dining at restaurants and spending money, which economized, purchases many better and perhaps more needed things. Stews largely composed of potatoes and various vegetables with only enough meat used to flavor them are better than meat stews. Potatoes cooked à la Boulangère with bacon, and sliced onions constitute a meal in themselves. A small part of meat or fish will give relish or flavor to the satisfying and nourishing cereal. The farinaceous or vegetable dinner will save money and health.

New York State Journal of Medicine

July, 1918, **18**, No. 7

82 Newer Methods in Diagnosis of Thyroid Disorders; Pathologic and Clinical. E. Goetsch, Baltimore.—p. 259.
83 Medical Treatment of Exophthalmic Goiter. H. C. Gordinier, Troy.—p. 267.
84 Surgical Treatment of Goiter. C. W. Webb, Clifton Springs.—p. 272.
85 Dry Milk in Infant Feeding. R. H. Dennett, New York.—p. 278.
86 Some Problems in Visual Economics as Applied to New York State Workmen's Compensation Law. A. C. Snell, Rochester.—p. 284.

Public Health Journal, Toronto

July, 1918, **9**, No. 7

87 Problems of Rural Mother in Feeding of her Children. A. Brown, Toronto.—p. 297.
88 Education of Medical Student in his Relation to Child Welfare. R. A. Bolt.—p. 302.

89 Result of Three Years Work in Department of Child Hygiene, Toronto. G. Smith, Toronto.—p. 310.
90 Baby's Father. H. MacMurchy, Hamilton, Ont.—p. 315.
91 National Conference of Social Work, Kansas City, 1918. A. H. Burnett.—p. 324.

Southern Medical Journal, Birmingham, Ala.

July, 1918, **11**, No. 7

92 *Oral Sepsis and Digestive Apparatus. L. F. Barker, Baltimore. —p. 481.
—p. 484.
93 *Oral Sepsis and Anemias. M. L. Graves, Galveston, Texas.
94 Diagnosis and Treatment of Oral Infections. T. P. Hinman, Atlanta, Ga.—p. 487.
95 *Oral Sepsis and Arthritis. J. H. Gibbes, Columbia, S. C.—p. 489.
96 *Relation of Chronic Infection to Thyroid Deficiency. H. G. Beck, Baltimore.—p. 492.
97 Sociologic Factor in Public Health Movements. J. P. Faulkner, Atlanta, Ga.—p. 496.
98 *Popularizing Public Health. C. E. Terry and F. Schneider, Jr., New York.—p. 498.
99 *Case of Congenital Pyloric Stenosis. W. D. Haggard, Nashville, Tenn.—p. 506.
100 *Tetanus Following Laparotomy for Ectopic Pregnancy. Treatment by Subarachnoid Injections of Magnesium Sulphate and Antitetanic Serum—Recovery. D. B. Casler, Baltimore.—p. 512.
101 Thoracic Empyema. M. D. Delaney, Alexandria, Va.—p. 518.
102 Postoperative Residual Urine. R. M. Harbin, Rome, Ga.—p. 519.
103 Case of Fracture of Skull. G. S. Wright, Cowan, Tenn.—p. 520.
104 Surgery as Therapeutic Agency in Acute and Recurrent Iritis. M. M. Cullom, Nashville, Tenn.—p. 522.
105 Objective Ear Noises; Report of Case. A. I. Weil, New Orleans. —p. 526.
106 Results of Tonsil Surgery as Revealed by Examination of Nearly One Thousand Five Hundred Schoolchildren Who Have Been Operated On. E. L. Roberts, Nashville, Tenn.—p. 529.

92. **Oral Sepsis and Digestive Apparatus.**—Barker calls attention to the fact that serious arthritis, osteitis, osteomyelitis, periostitis, myositis, embolic pneumonia, pleuritis, nephritis, ureteritis, myocarditis, endocarditis, pericarditis, lymphadenitis, neuritis, neuralgia, iritis, anemia, septicemia, and pyemia may, in certain cases, have their origin in oral sepsis and there is a growing tendency to look on the same etiologic factor as contributory, in many instances, to chronic degenerative diseases like arteriosclerosis and arterial hypertension. In the origin of disease in the digestive apparatus the forms of oral sepsis principally concerned consist of two groups: (1) alveolar infections secondary to diseases of the dental pulp; and (2) gingivitis, pyorrhea alveolaris, and infections about impacted teeth and unerupted teeth. The first group includes: (*a*) acute periodontitis (apical, interradial or lateral) in which the tooth becomes tender, especially at night, and feels longer and looser than it should so that mastication becomes painful, often resulting in an acute alveolar abscess (popularly known as a gum boil), in an alveolar parulis (or flat swelling under the periosteum), or in a chronic alveolar abscess with a sinus to the gum or face; and (*b*) proliferative periodontitis, that leads to granuloma (apical, interradial or lateral), usually starting as a result of the devitalization of a tooth and imperfect treatment of the root canal, and causing no symptoms referable to the tooth or gums recognizable by the patient.

The condition is easily recognizable in roentgenograms made on intra-oral dental films; without such roentgenograms it can scarcely be recognized with certainty. Barker states that any person who has devitalized teeth in his mouth does well to have them roentgenographed at intervals in order that a developing proliferative periodontitis shall not be overlooked. The second group of oral infections includes, as stated, gingivitis, pyorrhea alveolaris, and infections about impacted teeth and unerupted teeth. Much toxic matter may be directely absorbed from such infected areas. Often pus is swallowed over long periods (especially in pyorrhea alveolaris), or local extensions or metastatic infections may occur. Inspection of the mouth, palpation of the gums, and roentgenographic examinations make the diagnosis clear. The commonest varieties of disturbance of the digestive apparatus associated with the forms of oral sepsis mentioned above are (1) gastritis and gastro-enteritis, (2) achylia gastrica, (3) pylorospasm, and (4) a toxic hepatopathy. It seems probable also that some cases of (5) gastric and duodenal ulcer are secondary to oral sepsis. Whether (6) appendicitis and (7) cholecystitis may occasionally, as some think, be due to metastatic infection from a primary oral focus, Barker says, is still in doubt.

93, 95 and 96. Abstracted in The Journal, Dec. 29, 1917, p. 2207.

98. Abstracted in The Journal, Dec. 15, 1917, p. 2066.

99 and 100. Abstracted in The Journal, Dec. 22, 1917, p. 2143.

Texas State Journal of Medicine, Fort Worth

July, 1918, **14**, No. 3

107 How We Treat Wounds Today. R. W. Knox, Houston.—p. 121.
108 Plea for Prolonged Rest in Bed in Treatment of Pulmonary Tuberculosis. S. E. Thompson, Kerrville.—p. 125.
109 Pregnancy and Tuberculosis. W. O. Wilkes, Waco.—p. 130.
110 Complement Fixation in Tuberculosis. M. D. Bell, Dallas.—p. 134.
111 Tuberculosis and Country Physician. H. L. Wilder, Clarendon. —p. 136.
112 How Tuberculosis Specialist Can Best Help General Practitioner in Antituberculosis Campaign. H. F. Gammons, Carlsbad.—p. 138.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

July 6, 1918, **2**, No. 3001

1 Nature and Symptoms of Cardiac Infection in Childhood. F. J. Poynton.—p. 1.
2 *Nephrotomy Combined with Cesarean Section in Treatment of Eclampsia with Suppression of Urine. C. White.—p. 4.
3 *Tinel's Sign in Peripheral Nerve Lesions. W. M. Macdonald. —p. 6.
4 Sporadic Case of Polioencephalitis. J. N. Marshall.—p. 8.

2. **Cesarean Section and Nephrotomy for Eclampsia.**—White claims that suppression of urine in some cases of pregnancy toxemia is caused by pressure on the collecting tubules due to increased tension inside the fibrous capsule of the kidney. It can be treated successfully by nephrotomy after symptoms have persisted for many days. As a prophylactic measure nephrotomy may be combined with cesarean section advantageously in suitable cases.

3. **Tinel's Sign in Peripheral Nerve Lesions.**—Electric tests are of great assistance in arriving at a complete conclusion when taken in conjunction with other methods of examination, but Macdonald says, they should not be regarded as final, and it is important that the other methods of diagnosing the interruption of a nerve should have their true value recognized. Of these the most important is what Tinel calls *le signe du fourmillement*, which may be translated as "distal tingling on percussion" (and abbreviated as D. T. P.). This sign depends on the fact that when young axis cylinders are percussed there is a sensation of tingling in the cutaneous area corresponding to the ultimate distribution of the axis cylinders. Thus if the musculospiral nerve is cut across in the arm and the proximal end is percussed no tingling will be felt by the patient. The lower segment of the nerve then degenerates, and a very short portion of the upper segment of the nerve, as well as the muscles, tendons, skin, etc., supplied by that nerve exclusively, become insensitive.

After a time regeneration commences at the lower end of the proximal segment, and new axis cylinders grow down to and beyond the point of section. In from four to six weeks there will be bundles of new axis cylinders at this point, and if they are firmly tapped with the forefinger the patient will experience a sensation of tingling or "pins and needles" in the skin over the dorsum of the first and second metacarpals. When tingling in the hand follows tapping on the arm this indicates not continuity of the neuron between the arm and the hand, but between the arm and the brain. If the new axis cylinders are arrested or twisted back to form a neuroma by a fibrosis or keloid mass at the end of the lower segment, or if they cannot reach the latter owing to extensive destruction, the portion of nerve from which D. T. P. can be elicited is never longer than 2 or 3 cm., and is situated at the site of the lesion. That is what is commonly found in interruption by neuroma or section.

If, however, the new axis cylinders succeed in growing down the trunk, or if the latter has only been contused and has preserved its anatomic continuity, then with the growth of the cylinders there occurs a downward extension of the D. T. P. Another example of the utility of this sign is afforded by cases in which a nerve lesion has occurred in a limb with multiple wounds. The site of the D. T. P. indicates which wound is responsible for the lesion. In lengthy wounds also it indicates the exact level of the nerve injury. In testing for D. T. P. one or two practical points are to be observed. The first is that percussion must always be begun from the distal end and proceeded with slowly, as an unintelligent patient may have a persistent sensation of tingling once it has been obtained and so give fallacious responses. Second, too much shaking of the limb must be avoided, as in a sensitive patient the shock may set up tingling in an area other than the one percussed. Third, care must be taken not to set up tingling in another nerve. Thus, with a complete ulnar and an incomplete median, the patient may answer for the median when the ulnar is percussed. In the leg also patients are apt to confuse tingling in the sole and on the dorsum of the foot (internal and external popliteals). Another source of confusion is the downward growth of stray fibers while the bulk of the nerve remains interrupted. This error can be rectified by later examinations when the bulk of the D. T. P. is found to be at the site of the lesion, while that obtained lower down is indistinct and irregular. In elderly alcoholic, or debilitated persons nerve regeneration is very imperfect, or may altogether fail. In these cases D. T. P. does not occur, and its complete absence is usually a sign of grave prognostic import, but on the whole it is of more value as a positive than as a negative sign.

Bulletin of Naval Medical Association of Japan, Tokyo

June, 1918, No. 19

5 *Treatment by Radium-Ray. R. Fukuda.—p. 1.

5. **Treatment by Radium-Ray.**—Fukuda has treated thirty-one cases of cancer, sarcoma, lupus, anal fissure, exophthalmic goiter, tubercular lymphadenitis, nevus and angioma by radium ray in the Tokyo Charity Hospital. The effect on cancer was extremely good if adequate attention was paid to applying sufficient radiation measured by the quantity of radium and the duration of exposure. In cases of cancer of the esophagus, a relatively small quantity was sufficient to relieve patients from pain and contraction caused by the tumor; but not for its permanent cure. The effect on sarcoma was also good. Its effect on anal fissure, without any signs of relapse was noteworthy. The effect on lupus was uncertain, some patients being permanently cured without relapse, and some not being affected at all. The effect on tubercular lymphadenitis was undoubtedly good. It had some good effect on the thyroid [illegible] iter patients. In some cases two or three [illegible] in the rapid reduction of the enlarged thyroid with an improvement of the general signs. The cosmetic effect on angioma and nevus was certain. Its effect on nocturnal incontinence seemed to be certainly good; multiple condyloma acuminata were more beneficially affected than by any other treatment; the scar was softened and the chronic inflammatory infiltration was dispersed by this treatment. Local burns were sometimes caused by this treatment, even through a suitable filter. These burns, however, healed quite easily by themselves and there was no need to pay much attention to them.

Edinburgh Medical Journal

July, 1918, **21**, No. 1

6 Treatment of Acute Appendicitis. W. Q. Wood.—p. 3.
7 Case of Calculus Anuria Treated by Decapsulation of Kidney and Drainage of Renal Pelvis. N. H. Bronnum.—p. 13.
8 Training of Student of Medicine: Teaching of Medicine. W. Russell, G. L. Gulland.—p. 16.
9 Id.; Teaching Arrangements in Medicine. E. Matthew.—p. 24.

Lancet, London

July 6, 1918, **2**, No. 4949

10 Maternity and Child Welfare Work. A. Newsholme.—p. 1.
11 Infant Mortality and Education of Mother. H. W. Pooler.—p. 3.
12 Epidemic Encephalitis; Report of Cases. S. A. Wilson.—p. 7.
13 *Operative Treatment of Trigeminal Neuralgia. J. Hutchinson.—p. 12.

13. **Operative Treatment of Trigeminal Neuralgia.**—Since 1898 Hutchinson has operated by one technic in over sixty cases, in all of which the ganglion has been approached by the temporal route. Considering the advanced age of most of the patients (many have been from 50 to 60, and one was 72 years old) and their exhausted condition from the effects of years of agonizing pain; taking also into account their malnutrition from inability to masticate their food, etc., and often their edentulous state from fruitless removal of teeth, the results of the operation have been most satisfactory. Only one case proved fatal. The patient was an old man, the subject of both ataxia and true epileptiform neuralgia. He was so feeble that Hutchinson tried to avoid operation by resorting to alcohol injections—which made him worse—and ultimately the gasserian ganglion was excised. His dura mater was very thin and it gave way in detaching it from the skull. Probably owing to this there was undue pressure on the brain during the operation. He died of sudden cardiac syncope an hour after its completion.

Hutchinson says that experience with peripheral neurectomy and alcohol injections has usually obtained respite from the neuralgia for a varying period of months, but return is practically invariable. The essential feature of his method of operating consists in sparing the ophthalmic trunk of the fifth nerve. After the operation facial paresis or paralysis of uncertain duration has occurred in a few cases, on the side operated on due to detachment of the dura mater from the upper surface of the petrous bone, and hence to blood getting through the small openings leading to the aqueductus fallopii. With due care one should avoid this. A more important complication, met with in three or four of the sixty cases, has been weakness of the opposite arm and leg apparently from retractor pressure on the brain during a long operation. Recovery from this is very slow, and the risk of its occurrence points to the greatest care being taken throughout the operation in the use of the retractor, and frequent relaxation of all pressure by depressing the retractor against the bone or removing it for a time.

Medical Journal of Australia, Sydney

June 15, 1918, **1**, No. 24

14 Gunshot Wounds of Knee Joint. B. Quick.—p. 487. To be continued.
15 *Intestinal Obstruction from Large Gallstone in Ileum. A. Aspinall.—p. 492.
16 *Restoration of Supination by Verrall's Splint. H. S. Stacy.—p. 493.
17 Case of Splenomegalic Polycythemia. H. J. Ritchie.—p. 493.
18 Case of Harlequin Fetus. W. F. Litchfield.—p. 494.
19 Congenital Radio-Ulnar Synostosis. J. G. Edwards.—p. 494.

15. **Intestinal Obstruction from Gallstone in Ileum.**—Aspinall's patient, a woman 61 years of age, had had persistent vomiting for three days. The character of the vomit had been the same throughout, namely, greenish brown color, of feculent odor. The patient was cold, and collapsed, and was vomiting constantly. The abdomen was slightly distended. There was general tenderness on palpation. No definite rigidity was detected. There was no jaundice. Previous history: She had had repeated attacks of gallstone colic during the last nine years, but during the past twelve months could scarcely eat a meal without vomiting. The diagnosis of intestinal obstruction was made and immediate surgical interference recommended. When the abdomen was opened the small intestine was seen to be distended, and on passing the hand up in the region of the gallbladder no marked adhesions were felt, although the gallbladder felt hard and suggested the presence of gallstones. In the left iliac region Aspinal felt a hard body in the bowel; on bringing this portion of the bowel into the wound it was seen to be somewhat collapsed below. The mass was a large gallstone in the ileum about 120 cm. above the ileocecal valve, and moveable for about 60 cm. Then the bowel contracted on it firmly. The bowel was incised and the stone removed. At the site of the stone a marked ring of contraction was evident; before the abdomen was closed this contraction had passed off. The blocking of the bowel was due to spasm from irritation of the stone rather than from mechanical obstruction.

The calculus weighed 13.8 gm.; its length was 36 mm., its diameter 26 mm. and its circumference 85 mm. The patient survived.

16. **Restoration of Supination by Verrall's Splint.**—A soldier, aged 47, had a gunshot wound of the right forearm, fracturing both the radius and ulna about the middle. A piece of the radius was removed two weeks later. An internal angular splint was applied for three months; then massage was given. The masseur attempted to supinate the forearm, but owing to the pain desisted. The man had been discharged from the Army, with his forearm almost completely pronated and with great pain over the fifth metacarpophalangeal joint. It was impossible to supinate the forearm more than a small extent. Stacy decided to apply Verrall's splint, which consists of a plaster casing enveloping the lower half of the upper arm and the upper half of the forearm, in one piece; in the other, the lower half of the forearm down to the palm (leaving the thumb free), is enveloped. Along the radial and ulnar borders of each casing a piece of metal 2 cm. wide and 8.75 cm. long, 7.5 cm. of which is turned up at right angles, is incorporated, making four in all. The vertical turned up portions project at the edges of the casing, the horizonal portions being serrated, in order to fix them to the plaster bandages better. The limb, before the application of the plaster, is enveloped in felt or cottonwool, care being taken to pad well the lower end of the radius in front and the lower end of the ulna behind. In twenty-four hours the pieces of the metal are partly approximated by rubber tubing, radial to radial, ulnar to ulnar. They may be tightened every few days. When supination is complete, it is left on for three weeks longer. This man's supination is now almost completely restored, the treatment having taken two months. The patient found it painful for the first week. He lost all his pain in the palm, and recovered his hand-grip, which previously was very feeble. He is now rejoining the army, and hopes to go abroad soon. The malposition in this case was partly due to contracture of the soft parts around the site of fracture and partly to the contraction of the capsules of the radio-ulnar joints as a result of long immobilization in that extremely faulty splint, the internal angular.

Medical Journal of Australia, Sydney

June 22, 1918, **1**, No. 25

20 *Mine Accidents at Broken Hill and Their Treatment at Broken Hill and District Hospital. M. Birks.—p. 507.
21 Gunshot Wounds of Knee Joint. B. Quick.—p. 510.
22 Case of Lactosuria with Acetone and Diacetic Acid. H. C. Carden.—p. 513.

20. **Treatment of Mine Accidents.**—In the treatment of burns, Birks has had good results from the use of No. 7 formula paraffin, applied with a broad fine haired varnish brush. In the treatment of shock great stress is laid on keeping the patient warm, and avoiding, as much as possible, mental and physical discomfort. He has practically given up using stimulants. Alcohol and strychnin are now looked on as dangerous. Morphin is their sheet anchor. It is used to prevent and to treat shock. In severe accidents Birks usually give 0.03 gm. hypodermically. If the shock is not successfully combated, the next step is to give intravenously half a liter of hypertonic saline solution. For this purpose use is made of the following formula: sodium chlorid, 2.00 gm.; potassium chlorid, 0.05 gm.; calcium chlorid, 0.05 gm.; saturated solution of gum arabic, 6.00 gm. and distilled water to 100 c.cm.

Sei-I-Kwai Medical Journal, Tokyo

June, 1918, **37**, No. 6

23 *Staining Solution for Protozoa and Blood. T. Watabiki.—p. 21.

23. **Staining Solution for Protozoa and Blood.**—Watabiki describes his modification of the method of Romanowsky. The erythrocytes and the granula of the eosinophils take a red color and the nuclei a purplish red, contrasting with the blue of the protoplasm, the bluish red of the neutrophil granula, and the purplish black of the basic granula. Two solutions are prepared separately, the methylene blue, and the eosin stains. Solution I, the methylene blue, is made as follows: methylene blue, 1.0; absolute alcohol, 10.0; sodium carbonate, 1.0; distilled water, 90.0; dissolve the polychrome methylene blue in the alcohol and the sodium carbonate in the water, and then mix the two. The container should be plugged with cotton and allowed to remain undisturbed in the incubator at 37 C. for two days. Solution II, the eosin preparation, consists of: eosin, water soluble, yellowish, 1.0; distilled water, 200.0. To Solution II the filtered Solution I should be added slowly. A purplish black, finely granular precipitate forms immediately, resulting from a combination of the dyes. This may be called "methylenazureosin." The mixture is allowed to stand for an hour and is then filtered. The residue is carefully collected from the paper by means of a wooden spoon and is dried for twenty-four hours at 37 C. An extremely light, purplish-black powder may then be collected. This is the "methylenazureosin" and should amount to about 0.5 gm. The methylenazureosin is carefully ground to a powder and to 0.5 gm. is gradually added 150 c.c. of methyl alcohol. After filtration, 150 c.c. of neutral glycerin is added. This preparation will keep, ready for use, for a long time if put in a dark cool place.

Smears to be stained should be very thin and air dried at room temperature. Fixation is by an ether-alcohol mixture and should require about ten minutes. For use the stain is diluted to 1:10 with distilled water and the smears should be stained for three to thirty minutes, depending on the material to be stained. Leukocytes, blood platelet and bacteria require three to five minutes; trypanosoma, piroplasma, malarial parasites and spirochetes require longer, five to ten or even thirty minutes. In the case of *Spirochaeta pallida* no rule can be established and the stain should remain as long as is necessary to secure a good result. In such stained preparations the various elements present differential characteristics as follows: (*a*) Purplish red: the nuclei of trypanosoma, secondary nuclei, flagella, the chromatin of the malaria plasmodium and piroplasma, *Spirochaeta pallida*, the spirochete of relapsing fever, the spirochete of icterohemorrhagia of India, and the nuclei of leukocytes, cells and blood plates. (*b*) Blue: body of the trypanosoma, piroplasma, plasmodia, and the protoplasm of leukocytes and other cells. (*c*) Red: the granules of eosinophils and of pseudoeosinophils. (*d*) Pale blue-red: the granula of neutrophils. (*e*) Black violet: the granula of basophils. Bacteria are stained blue or blue-black, the nuclei of erythroblasts blue-black.

Archives des Maladies du Cœur, etc., Paris

June, 1918, **11**, No. 6

24 *The Heart in Diphtheria. E. C. Aviragnet, R. Lutembacher and Le Soudier.—p. 241.
25 Aortic Diastolic Thrills. L. Bard.—p. 272.
26 Pure Dextrocardia. A. Clerc and J. Bobrie.—p. 277.

24. **The Heart in Diphtheria.**—Aviragnet and his co-workers expatiate on the great interest of the arrhythmias in the course of diphtheria. They are not only of great variety, but they vary from moment to moment, and it is possible to trace in them the whole gamut of progressing and retrogressing disturbances in conduction of the impulse. Only polygraphic methods, with radioscopy, permit exact study of the phenomena induced by the toxic action on the heart. Anatomic examination alone is often misleading. This explains the conflicting testimony that has been published, some of which is analyzed here. The case is then described of a boy of 14 with diphtheria for eight days before antitoxin was given. Seventeen tracings of the heart action are given, showing toxic heart block and extrasystoles and their gradual retrogression, with a colored plate of the necropsy findings in the bundle of His. The boy succumbed the twenty-fifth day to weakness of the myocardium. The lesions in the myocardium were both interstitial and parenchymatous, but they were less pronounced in the bundle of His than elsewhere. Fatty degeneration of the liver was pronounced but the kidneys and suprarenals showed only slight changes.

Bulletin de l'Académie de Médecine, Paris

June 4, 1918, **79**, No. 22

27 *Bronchopulmonary Spirochetosis. H. Violle.—p. 429.
28 *Radiotherapy of Superficial Cancer. J. Darier.—p. 431.

29 *Massive Doses in Serotherapy. A. Jousset.—p. 432.
30 *Congenital Luxation of the Hip Joint. Calot.—p. 434.

27. **Bleeding Bronchitis.**—Violle has recently encountered thirty cases of what Castellani in his original report ten years ago called bronchopulmonary spirochetosis. Violle had the thirty cases grouped in a special ward as the disease seems highly contagious; it was probably imported by the Asiatic troops. The sputa are always red with blood, like raspberry juice, and they contain the special spirochetes, sometimes in pure cultures. The disease is relatively benign; the men were sick for about a month in all, but relapses were frequent. The onset is insidious, and the bloody expectoration suggests tuberculous hemoptysis until the spirochetes are found in the sputum; they were never found in urine, blood or in the nasopharyngeal secretions. The slight bleeding leaves open foci which are liable to become infected with other germs.

28. **Contraindications for Roentgen Treatment of Cancer.**—Darier's extensive experience has apparently confirmed that the superficial cancers amenable to radiotherapy are the face epitheliomas of the elderly, the basal-celled growths. They never involve neighboring glands or induce visceral metastasis. But lobulated epithelioma, such as smoker's cancer, on the tongue or lips, cancer of the external genitals or anus, cancer of cicatrices and lupus—this type is not cured by roentgen or radium treatment. When it is applied there is apparent improvement for two or three weeks, then it is seen that the proliferation is growing more active, whipped up, as it were, by the radiotherapy. The cancer may have been operable at the start but after the radiotherapy it becomes inoperable. Darier reiterates that these spine-celled epitheliomas are exclusively amenable to surgical excision which should be as extensive as possible. Radiotherapy further has no influence on melanic sarcomas or cancers that develop in a nevus, sometimes in the young. It is wasting time to dally with radiotherapy; this form of cancer demands radical excision or electrolysis, which is perhaps preferable here. Radiotherapy applied to the small bunches in the skin of secondary cancer, as with mammary cancer, has only a deceptive influence; the bunches may subside under it, but the prognosis of the malignant disease as a whole is not modified thereby. Hence, he reiterates, microscopic examination of a scrap of the cancer will give the clue for successful treatment, if it proves to be a basal-celled growth, especially in the form of ulcus rodens.

29. **Massive Doses in Serotherapy.**—Jousset has made over 1,500 subcutaneous injections of from 50 to 150 c.c. of antituberculosis serum. The injections were repeated at intervals of several days or several weeks or several months. Nothing suggesting anaphylaxis was observed in any instance, and he declares that the fear of anaphylaxis in serotherapy is absolutely chimerical, and that never, in the ordinary conditions of practice, are we liable to encounter it if we utilize serums *larga manu* without regard to possible consequences.

Anaphylaxis presupposes a preliminary sensitization by a small dose of serum, always smaller than the smallest doses of our current practice. Anaphylaxis presupposes further a new injection, two or three weeks later, this time by the vein. This combination is very exceptional and scarcely ever is realized. Of course the massive doses he uses expose to by-effects, sometimes quite dramatic, but they have nothing to do with anaphylaxis, as is evident from their harmless character and the fact that they occur immediately, at the very first injection, even in young children. Anaphylaxis, on the other hand, requires a prepared soil. The by-effects of serotherapy in man are phenomena of toxic action, varying with the individual susceptibility which it is impossible to foretell. It is wrong and misleading to apply the term anaphylaxis to these phenomena. "Anaphylaxis is redoubtable only in the laboratories," he adds, "In man, fatal shock from serotherapy seems to me a pure legend."

30. **Principles for Treatment of Congenital Dislocation of Hip Joint.**—Calot says that the success of treatment depends on the position given the thigh during the months of immobilization, but that there is no agreement among surgeons as to what is the proper position. Rotation, flexion and abduction are applied differently by different men, and without regard for the special conditions in the individual case. This is the explanation for the failures and the return of the luxation. In his experience with over 2,000 cases, he has learned that certain mathematical principles govern the restoration of clinically normal conditions. The thigh must be placed in an attitude determined by the angle of slant and the angle of torsion of the neck of the femur. The rotation should be equal to the angle of torsion of the neck. The abduction should be equal to the angle of the slant of the neck, which is the complement of the angle formed by the neck with the static axis of the femur. The flexion is done in a circular cone, the axis of which coincides with the prolongation of the transverse line (sound cotyle, cotyle, head and neck of the side affected). The shaft of the femur is the generator of this cone, and the generator angle is the supplement of the neck's angle of slant. Rotation, abduction and flexion should be done in the order named. The angles of slant and of torsion can be determined by roentgenoscopy. The femur is rotated inward until the screen shows that the neck has reached the point of its maximal length. This is the true angle of slant, and he marks and measures it. He notes further the rotation of the knee required to bring the neck into this position of its maximal length. The amount of rotation of the knee is equal to the femur's angle of torsion. If roentgenoscopy is not available, two radiograms, taken 90 degrees of rotation apart, may answer, or even mere clinical examination.

Paris Médical

May 18, 1918, 8, No. 20

31 *Scabies. G. Milian.—p. 385.
32 *Gallbladder Colics without Stones. L. Lévi.—p. 388.
33 Chronic and Postoperative Dilatation of the Duodenum. V. Pauchet.—p. 393.
34 *Suprapubic Bladder Fistulas. F. Cathelin.—p. 395.

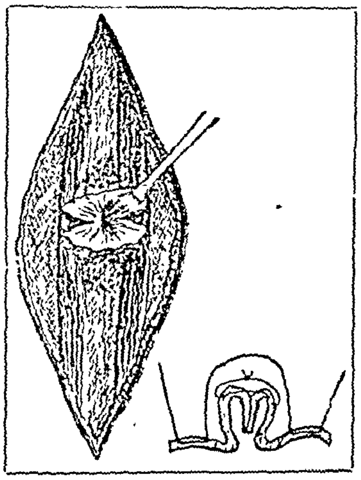
31. **Scabies.**—Milian remarks that 500 cases of scabies per month in two *corps d'armée* have been the average for some time. He has simplified the treatment by using a soluble sulphur salt instead of the insoluble salt generally ordered. The soluble salt can be applied by inunction and there is no need to change the linen. The inunction is repeated the next day and the salve is washed off thoroughly with soap the third day. His formula calls for 250 gm. each of petrolatum and adeps lanae, with which are incorporated 50 gm. potassium polysulphid and 250 gm. water. Then 5 gm. of zinc oxid and 200 gm. of liquid petrolatum are added. The salve has a disagreeable odor at first, but this wears off in half an hour. The scabies symptoms may become aggravated under this treatment for the first three or four days, and unless the salve is thoroughly washed off after the second inunction there is liable to be an eruption. In any event, it is well to follow with a zinc oxid paste made up with equal parts of the zinc oxid, petrolatum and adeps lanae.

32. **Congestions from Thyroid Instability.**—Lévi reports a typical case of "neuro-arthritism" with congestions in different organs revealing thyroid instability. The patient is a woman of 37 and the congestions at times in different organs led to various conflicting diagnoses. The most striking clinical picture was presented when the gallbladder became much enlarged from congestion in the cystic duct closing the outlet of the gallbladder. Paroxysms of pains and tenderness suggested gallstone mischief, but during an appendicectomy exploration of the gallbladder failed to reveal any stones. The provocative influence of a course of treatment at Vichy on these gallbladder colics was evident on more than one occasion. During a month of repose and dieting for the assumed cholelithiasis, there was an extremely severe attack each week. On the other hand, during periods of extreme activity and fatiguing travel, with no diet restrictions, three months might pass without an attack. The special feature of the case, however, was the gradual progressive subsidence of the attacks, along with all the other symptoms, when thyroid treatment was given systematically. This is more conclusive than if the attacks had stopped abruptly, which might have

been ascribed to a coincidence. The approach of the menses induced various phenomena of congestion, and the gallbladder colics developed in connection with these phenomena, or they were preceded by a violent attack of myalgia and neuralgia. The woman's breasts swelled before the menses, and the more they swelled, the more intense the gallbladder attack when such developed.

Under thyroid treatment, 5 mg. cachets, the woman's martyrdom ceased, and she has resumed an active life. The case teaches the advisability of tentative thyroid treatment in every case of thyroid instability, even if the symptoms cannot be definitely classed. This patient's mother was a sufferer from migraine, and one of her children had asthma which was cured by thyroid treatment. The patient herself has had from youth a tendency to headaches, nasal asthma, urticaria and mild rheumatism, and once there was intoxication from belladonna, given in small doses.

34. **Suprapubic Vesical Fistulas.**—Cathelin has been amazed at the rapid cure of hypogastric fistulas treated by inversion of the skin. He applied this technic, March 13, 1917, curing with it in a few days a fistula rebellious to other methods of treatment for five months. In a second case the fistula was of twelve months' standing, and the healing was complete in twelve days. The fistulas were the result of war wounds. The fistula is circumscribed with a bistoury at about 3 or 5 mm. from its center, and this collar of skin surrounding the fistula is loosened up to the mouth of the fistula. The skin beyond is incised along the same meridian and is loosened up in the same way for some distance back. The collar around the fistula is then slit on both sides, perpendicular to the meridian, and each half is turned inside out, toward the lumen of the fistula. The raw sides are thus brought in contact and the folded-over ends are pushed down into the fistula. Three fine silk sutures hold the ends inverted. Other silk threads are passed through beyond, bringing the other ends together above. The skin is sutured together in a straight line over the whole. The method is equally applicable to bladder and ureter fistulas. The various steps are shown in four illustrations. One of the special features is that the bladder wall itself is left unmolested. The pincers used are oculists' pincers, to avoid injury of the skin flap, and the needles are right, intestinal needles, very small. Catgut is absorbed too soon; fine silk is the reliance. A retention catheter is depended on for drainage for twenty-five or thirty days. The technic can be applied equally well to fistulas into any hollow organ. The ultimate outcome in his three bladder cases has been perfect.



Presse Médicale, Paris

June 24, 1918, **26**, No. 35

35 *Encircling Bands for Fractures. J. Tanton.—p. 317.
36 *The Glass Pressure Sign. J. Nicolas, M. Favre and A. Saleur.—p. 318.
37 Spontaneous Periscapular Amyotrophies. A. Léri and Perpère.—p. 320.
38. *Talipes Varus. C. Ducroquet.—p. 321.

35. **Steel Bands to Hold Fractured Bone.**—Tanton gives illustrations of Parham's method of correcting fracture by passing one or more thin, narrow steel bands around the bone. There is a buttonhole in the broader tip of each band through which the other end is passed. The noose can thus be drawn tight and firm, and the end bent down to hold it, the osteosynthesis thus realized being solid and permanent.

36. **The Glass Pressure Sign.**—Pathologic changes in the derma may be rendered visible by pressing on the skin with a sheet of glass. This *signe de la vitro-pression* has been accepted as testifying to the tuberculous nature of the changes seen, but the research here reported shows that similar findings are common with syphilis and other diseases involving the skin.

38. **Talipes Varus.**—Ducroquet remarks that the number of cases of talipes varus equinus among the wounded is legion, and he discusses how it can be corrected. When not very pronounced, this can be accomplished by raising the heel very high on the outside and having the heel slope and project far to the outside of the foot. In paralysis of the external popliteal nerve, four elastic bands fastened to the side of the shoe and a garter above act like artificial muscles to keep the foot from dropping. In inveterate cases, very good results can be obtained with mediotarsal and subastragalal arthrodesis. This puts an end to the torsion and rolling over of the foot, while leaving a play of 35 degrees of movement which is ample for walking. The article is illustrated.

Progrès Médical, Paris

June 1, 1918, **33**, No. 22

39 *Stones in Urinary Apparatus. Uteau.—p. 189.
40 Heating Cradle. Bonnette.—p. 192.

June 8, 1918, **33**, No. 23

41 *Radioscopy of Normal Stomach. F. Ramond and P. A. Carrié.—p. 197.
42 *Reeducation of Blinded Soldiers. E. Ginestous.—p. 199.
43 Technic for Extraction of Projectile under Screen Control. J. Fiévez and P. Tronquet.—p. 202.

39. **Urinary Concretions.**—Uteau discusses the best means for removing calculi at different points in the urinary apparatus, illustrating typical cases. Catheterization of the ureter has proved successful in a few cases when the calculus was impacted in the ureter, but in one case reported in which the calculus protruded from the mouth of the ureter, even passing the catheter up to the pelvis, failed to dislodge it.

41. **Radioscopy of the Normal Stomach.**—Ramond and Carrié remark that the stomach containing the suspension of bismuth cannot be regarded as a normal stomach. They sought to approximate normal conditions better by mixing 40 gm. of bismuth in a dish of savory hash, eaten as at an otherwise ordinary meal. Eighteen vigorous men taking this meal were examined afterward with the roentgen rays, and the findings in the erect and recumbent positions are reproduced. With any tendency to gastritis, the mucosa is extremely sensitive, and pain is experienced when the gastric juice comes in contact with it. The chyme protects the mucosa against the gastric juice. When the inflamed part of the stomach is the initial portion—which is usually the case with toxic gastritis—then the gastric juice in the fluid contents acts at once on the inflamed region, and the consecutive pain is immediate. When the gastritis is in the middle part of the stomach, the chyme protects the mucosa, and there is no pain until the chyme is passed on out of the stomach which leaves the mucosa exposed to the irritation from the gastric juice in the fluid contents left. When the gastritis is in the region of the pylorus, no pain is experienced until the acid-containing fluid contents are passed along. A tardy pain, after two or three hours or more, indicates therefore an inflammatory process in the region of the pylorus. When the gastritis involves the whole of the stomach, then we have a combination of all three types of pain, the early, the retarded and the tardy pains.

42. **Training the Blinded Soldier.**—Ginestous declares that every minute is precious and not one should be wasted, from the beginning, to train the suddenly blinded. He is like a babe just born into a new world. From the very first, while still in the eye infirmary, his training in writing with a guide frame and in reading the Braille type should begin, without waiting to ascertain whether vision is entirely lost or not. A small broom or brush-making plant is now connected with each *centre d'ophtalmologie*. Even if vision is regained later, these exercises do not harm but fill up the leisure moments, while if total blindness is unavoidable, precious time has been saved. In his own service, Ginestous has been amazed at the rapid progress made by the men. In a few hours they learned to write with the aid of the frame. The Verdon-Richard *guide-mains* seemed to give the best results in this line. All the men could read and even write the Braille fluently by the time they left his service. All the men, besides, had been initiated into manual labor, such as

weaving rugs, making brooms or brushes, resoling shoes, or doing light garden work.

Revue de Chirurgie, Paris

Nov.-Dec., 1917, 36, Nos. 11-12. Issued May, 1918

44 *Suture of Nerves. E. Duroux and E. Couvreur.—p. 401.
45 *Surgical Service on Boats. Delanglade.—p. 420.
46 *War Wounds of Vessels in Neck. P. Mocquot.—p. 441.
47 *Complicated Fractures of Femur. G. Houzel.—p. 473.
48 *Projectiles in Mediastinum. R. Le Fort.—p. 489. Conclusion.
49 *The Seriously Wounded. Chalier and Glénard.—p. 552. Cont'n.

44. **Suture of Nerves.**—Duroux and Couvreur reiterate, on the basis of extensive clinical and experimental experience, that rapid recovery of function after suture of a nerve is an illusion. It takes a long time for a sutured nerve to regain its function. Even when the nerve has recuperated, if the muscles have degenerated beyond repair, the outcome will be poor. The median and the ulnar nerves are less likely to regain satisfactory function after suture than the external popliteal and the radial. Two cases are illustrated showing the fine functional results after suture of the radial nerve which had been severed by a bullet. In both cases the total radial paralysis gradually subsided, after the nerve had been sutured, to satisfactory functioning in a year, and to complete recovery of function by the twenty-first and twenty-eighth month. During the first six months the only apparent effect of the suture was the gradual disappearance of vasomotor disturbances, the cyanosis of hands and fingers progressively diminishing. This trophic improvement is due to the suppression of the exuberant connective tissue surrounding the ends of the nerve. The best results were attained when the stumps were cut slanting, the coaptation thus being oblique. The ideal to be aimed at is to unite motor fibers with motor fibers and sensory with sensory. "Motor fibers may grow to sensory fibers and conduct impulse, but what becomes of the impulse when it reaches the anterior root? There cannot be correct reflex action from it."

45. **Surgical Service on Canal Boats.**—Delanglade organized a hospital service on some canal boats plying on the Somme canal close to the firing line. The rough boats were readily adapted to the purpose in three days, and formed a useful supplement to the land hospitals, although hampered by lack of roentgen equipment. The fact among others that eight recovered of thirteen men with penetrating abdominal wounds, testifies to the advantages of these canal boats surgical services.

46. **Wounds of Large Vessels in Neck.**—Mocquot remarks that all the men with wounds of large vessels in the neck reached his service with no mention on their cards that these vessels had been injured. He assumes, consequently, that these injured vessels had not induced symptoms enough at first to attract attention. Short circuiting of the circulation by an arteriovenous aneurysm is a frequent complication. It may develop at once or not until several days or even weeks after the wound. The great danger with an operation in this region is the shutting off of the carotid artery blood from the brain. Hence temporizing is advisable, unless urgent conditions demand immediate intervention. Ligation of a carotid artery is a less serious procedure with an aneurysm than with a recent wound. If an immediate operation is necessary, every effort should be made to avoid the necessity for interrupting the blood supply to the brain, whenever this is possible.

47. **Compound Fractures of the Femur.**—Houzel restricts his remarks to the application of the Gassette apparatus in cases of war wounds of the thigh. He says it has been in use in different hospitals for eighteen months, and has established its usefulness and advantages "veritably approximating perfection."

48. **Projectiles in the Mediastinum.**—Le Fort here concludes his comprehensive study of this subject, based on his own experiences and the literature. He describes in detail each case in his two groups of forty and eleven cases, with deductions as to diagnosis, prognosis, and the preferable technic for extraction of projectiles in different sites.

49. **The Seriously Wounded.**—In this instalment of their extensive work, Chalier and Glénard review their experience with wounds of the genito-urinary apparatus, and the lessons learned therefrom.

Correspondenz-Blatt für Schweizer Aerzte, Basel

June 15, 1918, 48, No. 24

50 *Achylia Does Not Predispose to Cancer. A. Hofmann.—p. 785.
51 Accidents and Disease. H. Zangger.—p. 796. Conclusion.

50. **Gastric Achylia and Cancer.**—Hofmann queries whether achylia predisposes to malignant disease, his observation in a Berlin policlinic tending to answer the question in the negative. Among 368 cases of gastric achylia, there were four cases of gastric cancer and two in 200 private patients. In two of these six cases the achylia was of four to fourteen years' standing. In the others it may have been a symptom from the beginning cancer.

Chirurgia degli Organi di Movimento, Bologna

April, 1918, 2, No. 2

52 *Treatment of Infected Joint Wounds. D. Taddei.—p. 103.
53 *The Circulation in the Skin. G. Pieri.—p. 115.
54 *Reflex Crippling of Foot. F. Nassetti.—p. 129.
55 *Tendon Transplant for Radial Paralysis. G. Serafini.—p. 167.
56 *Research on Materials Used in Prostheses. A. Landini.—p. 195.

52. **Infected War Wounds of Joints.**—Taddei's experience in a base hospital has confirmed the advantages of subcapsular and subperiosteal resection of the infected joint, sparing muscles, tendons and the innervation of the muscles. Only when ankylosis is planned, should the ligamentum patellae be severed without hesitation. He applies the first dressings under a few whiffs of ether, and shuts off the blood temporarily with an elastic band above. This permits better inspection of the joint, while the febrile reaction to the dressing manipulations is less. He repeats the ether at each dressing, until they cease to cause pain. The leukocytosis induced by the ether aids in the defensive processes; it was his impression that the men given ether several times in this way had a more rapid and favorable course, other things being equal. Another impression was that gauze used in draining seemed to invite fistulas more when it was in strips than when packed in loose. The drainage acts like a foreign body and keeps up the suppuration.

53. **Kinetic Amputations and the Circulation in the Skin.**—Pieri has been studying the superficial circulation as it affects plastic and kinetic surgery. He gives illustrations of the location and branching of the vessels as they enter the skin in limbs and trunk, and outlines the flaps of skin that could be cut at different points so as not to interfere with the local circulation. The base of the flap can thus be located so that the artery, vein and capillary system will be left intact.

54. **Talipes Varus After War Wounds of the Leg.**—Nassetti gives illustrated descriptions of twenty cases of talipes varus that had persisted for several months or over a year after a war wound of the leg. The contusion or distorsion to which the deformity was referred was not apparently serious in any case, and there had been no septic complications even in the projectile cases. Some of the men were in bed for only a few days and some soon resumed their service, but had to return to the infirmary on account of swelling and pain in the foot. Others had had the limb long in plaster. He does not think that hysteria is exclusively the cause of the crippling. There are signs of neuritis in many cases, and other factors combine in this "metapsychic crippling." He applied various physical and mechanical measures in treatment, and obtained good results in the mild cases but little or none in the ones of longer standing, even with overcorrection in plaster. His experience confirms the vital importance of watching over the use of the foot when a man gets up after a wound of the leg, or even slight trauma of the leg. Vicious attitudes of the foot should be detected and combated early, addressing treatment both to possible organic causes, hysteria and simulation, with prolonged observation and systematic treatment, always in the one hospital when possible. The longer crippling persists, the harder to overcome.

55. **Tendon Plastics for Radial Paralysis.**—Serafini describes thirteen different methods for plastic operations on tendons to correct radial paralysis, besides operations on bones in

the region, and correction by external mechanical devices. He gives the details of two typical cases treated by transplanting tendons, with excellent effect. Whatever operative method is applied should be preceded by correcting the drooping of the hand, as this menaces the nutrition of the hand. In his second case this was responsible for swelling and cyanosis of the hand for a time. The literature on the subject of treatment of radial paralysis is reviewed.

56. **Experimental Research on Substances Used in Making Prostheses.**—Landini's investigations included wood, fiber, metal, leather and hides. His report fills sixty-three pages and is profusely illustrated; tables are given also showing the results of numerous tests of the strength, etc., of the substances under different conditions of humidity, dryness, pressure, strain, etc. Landini was awarded the $1,000 prize offered by the National Federation of committees for aid to crippled soldiers. His research and practical work were done in the experimental prostheses department of the Rizzoli Orthopedic Institute. He signs his name Landini "Eng.," not "M.D."

Policlinico, Rome

June 23, 1918, **25**, No. 25

57 *Lactic Acid as Dressing for Wounds. G. Moruzzi.—p. 581.
58 *Anglo-Saxon Medical Journalism. L. Verney.—p. 584.

June, 1918, **25**, Medical Section No. 6

59 *War Wounds of Peripheral Nerves. S. Ricca.—p. 161. Conclusion.
60 *Tactile Sensations in the Gassed. E. Cavazzani.—p. 178.
61 *Uric Acid and the Endocrine System. T. Silvestri.—p. 184.

57. *Sugar-Lactic Acid Treatment of Septic Wounds.*—Moruzzi describes the scientific reasons which led him to try a solution of 15 gm. of lactic acid and 250 gm. sugar in 1,000 gm. water, in treatment of septic wounds. The results in the twenty cases surpassed all anticipations. Suppurating and putrid wounds by the third or fourth day showed healthy granulations which spread more rapidly and healing proceeded faster than in any healing by primary intention. The cases included two of gas gangrene and eighteen of phlegmons. All had fever, pain and general toxic symptoms. After the surgical clearing out of the lesion it was dressed with this solution, renewed twice a day, the dressing left undisturbed.

58. **Anglo-Saxon Medical Journals.**—Verney describes for Italian readers two British and two American medical journals, of which The Journal is one. He remarks that Italy has not been familiar with Anglo-Saxon medical journals, partly from negligence but mostly from the preponderance of the German medical journals. It is only recently that Italy has realized the important position taken by the Anglo-Saxon in the field of medicine. In general medical journalism, he says, "The Journal A. M. A. takes the lead, not only in the United States but in all countries; no other is so well edited." "The discussions which are given with the addresses aid materially in illuminating the subject from various points." He pays high tribute to the editorials, "the most characteristic feature of Anglo-Saxon medical journals, short, lucid, interesting." The special articles in The Journal are also extolled as "revealing an ample and accurate knowledge of the subject, and rare critical balance. They may be regarded as the most useful feature of The Journal, they certainly are the feature that has most contributed to establish its renown." In commenting on the fight against nostrums, Verney remarks that the so-called American Evil is far from being restricted to America alone. He gives a full account of the Propaganda Department and its work, the Council on Pharmacy and Chemistry, the Educational Numbers of The Journal and of the British journals. He remarks of the latter that they accept certain advertisements of dubious products, "the *Lancet* even publishing advertisements on pages that should be reserved for the reading matter, a practice which in Italy is never seen in the leading medical journals."

The scant space devoted in the British journals to abstracts of current literature Verney ascribes to the British insular tendency to isolation, and chides them for it. "*The Journal* A. M. A.," he says, "carries on an intense and well organized editorial oversight of numerous journals in all countries, reviewing them promptly and accurately." He adds that besides the twelve Italian journals already indexed regularly in The Journal, two other Archives deserve a place and some of the specialist journals. To make space for more abstracts, he suggests dropping the indexing of the titles as superfluous. "On the whole, however," he exclaims, "would that some Italian medical journal had the courage and the capacity to imitate it." Another feature, he says, which distinguishes the Anglo-Saxon medical journals is the impartiality of the book reviews. They are not written, as in Italy, France and Germany, to please the publishers and flatter the authors, but actually to inform the readers. Verney does not forget to refer to "Tonics and Sedatives," saying that this lighter vein seems to him out of place in a serious scientific journal but that it "responds to the American spirit, untrammeled and free from prejudice. It has the advantage further of attracting attention to the advertising pages, which otherwise might not be glanced at."

59. **Suture of Nerves.**—Ricca discusses the clinical-surgical problem of war wounds of peripheral nerves inducing paralysis, with or without neuralgia. In nearly half of his own thirty-five cases with neuralgia, the pain developed the very day of the wound; in only seven cases was there an interval of a month or more before the onset of the pains. Early development of pain and paralysis indicates that the trouble is within the nerve and not the result of compression, etc. In his thirty-three operative cases he never found one with a zone of atrophy or strangulation of the nerve. The tendency to spontaneous recuperation also disproves the assumption of compression as the main factor. Injury from compression of the nerve must be regarded as a rare eventuality with war wounds of peripheral nerves. The reason why so many military surgeons ascribe such a predominant rôle to compression in these cases is merely because neurolysis, releasing the nerve, is almost inevitably followed by improvement. Ricca, however, insists that this improvement would have occurred spontaneously, without the intervention, in most cases. Study of parallel series with or without neurolysis amply confirms this assumption.

He emphasizes further that suturing the nerve does not ensure its recuperation, but only offers a probability of it. A cure or notable improvement after suture is observed only in less than half the cases of sutured nerves. On the other hand, a spontaneous cure was observed in over half the cases of the complete paralysis type. Outside of the cases with diastasis, a spontaneous cure was realized in about 66 per cent. of the cases. In all cases in which conditions do not indicate unmistakable compression, he advises surgical abstention if the lesion seems to be incomplete. If, on the other hand, the lesion is complete, an explorative operation is called for, and if the anatomic findings indicate that the nerve lesion is absolutely incurable, the nerve should be sutured. Otherwise, surgical intervention should be postponed until it is finally settled that spontaneous recuperation is out of the question.

60. **Modification of Tactile Sensations by War Toxic Gases.**—Cavazzani is professor of physiology, and he reports a case of poisoning from the gases used in warfare which apparently sustains his assumption that the fields of tactile sensation are an essentially psychologic phenomenon, as he describes in detail.

61. **Uric Acid-Destroying Power of Ductless Glands.**—The results of Silvestri's research seem to sustain his theory that the endocrine sympathetic system presides over the metabolism in general as the regulator, the physiologic stimulus indispensable for its normal rhythm, but not the *primum movens* of the metabolism. It merely stimulates or checks the activity of the metabolism in general, including the production and destruction of uric acid.

Upsala Läkareförenings Förhandlingar

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62 Development of Arsenic by Fungi. G. Wirgin.—p. 1.
63 Interstitial Myositis in Man of 43. G. Holm.—p. 23.
64 Frequency of High Blood Pressure with Accidental Heart Murmurs. E. Kylin.—p. 34.
65 Changes with Age in Rabbit Suprarenal. B. Bager.—p. 48.

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THE TEACHING OF PHARMACOLOGY *

ARTHUR D. HIRSCHFELDER, M.D.

MINNEAPOLIS

Our last chairman made a plea to bring the practice of clinical medicine closer to pharmacology. I should like to make a plea to bring the teaching of pharmacology closer to clinical medicine.

In saying this I have no desire to return one inch toward the old style teaching of empiricism, or to lessen one iota in the teaching of the physiologic action of drugs. I have selected this subject, trite as it is, on account of the difficulties which I myself encountered as a medical student in the study of pharmacology, and which I meet again in my own students and in the students of other medical teachers. I believe that these difficulties are not entirely inherent in the nature of the subject. Medical students have difficulty in grasping, assimilating and remembering the facts of pharmacology because they have too few pegs on which to hang them; and the value of the subject and its usefulness to them in after life suffers accordingly. I believe that this trouble is not inherent in the nature of the subject, and that it lies with us as teachers to remedy the defects.

I believe that we can do this partly by teaching the student how to study accurately the effects of drugs on himself, partly by basing our animal experiments and our didactic teaching largely on pathologic physiology, and by assigning to our student, at the time he is studying the formal pharmacology, enough outside reading of clinical pharmacology to make him see for himself the usefulness of the subject.

USE OF MAN IN EXPERIMENTAL WORK

I should like to begin by pleading for a more important place for man among the laboratory animals in routine teaching. He is just as good an animal as a dog or a rabbit. In the present state of affairs he is more plentiful, and he is cheaper; and to most medical students, especially when one experiments on himself or his fellow students, a great deal more impressive and a great deal more interesting. Just in proportion to this interest and to the associations in which it is clothed, the lessons learned in such experiments are the more impressive and the more lasting. Moreover, since we are training medical students to observe and treat patients, the experiments that they perform with accurate methods on themselves and on their fellows are also furnishing them with training and habits of applying equally accurate methods later in the treatment of their patients.

One of the most important lessons that they learn in this connection is the science of dosage. They take the drug in conventional dosage, and in most cases they get no effect. So they should be made to repeat the experiment, increasing the dose until an unmistakable physiologic effect is obtained. To avoid the effects of suggestion, different types of drugs having opposite or nearly opposite actions, interspersed with some inactive ones, should be given to each group of students, and they should not be told what drug they have been working with until the true results have been obtained and checked off by the instructor.

Occasionally a student is encountered who has a mild idiosyncrasy; his exaggerated reactions to an ordinary dose quickly become the talk of the class, and the effects of this drug are fixed in their minds forever.

Of course, the drugs that may be used for such purposes are limited in number. However, in such experiments as the testing of local anesthetics, the effects of boiling on cocain, the repetition of some of the studies of Hewlett, of Edsall, and of G. N. Stewart on circulatory and respiratory stimulants and nitrites, of Hollingsworth on the effects of caffein on cerebration and coordination, coupled with similar experiments on the opiates, bromids, epinephrin and strychnin, as well as in the studies of E. G. Martin on acetphenetidin, and in those of Macht on the morphin derivatives, we have a sufficiently large and varied series to impart a good deal of interest.

Such experiments bring the physiologic testing of therapeutic effects closer home to the student, and furnish him with the associations that render the impressions lasting. But we need not confine our experiments on man to such tests.

Experiments of theoretical importance, such as the conversion of organic acids to carbonates within the body and their use in the alkalinization of the urine, or the combination of drugs with hippuric and glycuronic acid, are more easily shown to the student in experiments on himself than in any experimentation on the lower animals.

PATHOLOGIC PHYSIOLOGY AND PHARMACOLOGY

In our experimentation on animals, too, we can do much to bring the picture home more closely to the clinical medicine for which he is aiming, not to the detriment, but even to the betterment of our pharmacologic lesson. We can begin the experiment by having the student reproduce in a measure some of the pathologic physiology of the disease to which the drug is applied.

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* Chairman's address, read before the Section on Pharmacology and Therapeutics at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

two disciplines. Pharmacology should be taught for its practical application first and for knowledge second.

Dr. **Bernard Fantus**, Chicago: There is a great deal of importance and, truth in what Dr. Meltzer has just said. However, his specifications of requisites for the teacher of pharmacology, I fear, are quite impossible of realization. Life is too short for a man to become a laboratory expert and a clinical expert as well. Many of our present teachers of pharmacology are, unfortunately, not even competent to teach in the whole domain of pharmacology. Many of them are merely students and teachers of pharmacodynamics, that is, the study of the action of drugs, and know very little about pharmacy or prescribing. The result is that these vital topics are not taught properly. The pharmacologist is essentially a laboratory man; and, as such, cannot be, at the same time, a clinician. The teaching of therapeutics should be in the hands of clinicians. To place it, as has been done in some institutions, in the hands of the pharmacologist is, in my opinion, an unfortunate and pernicious practice.

Dr. **Arthur D. Hirschfelder**, Minneapolis: In regard to the points that Dr. Sollmann made as to the effect of drugs on students themselves: I agree thoroughly with what he said about the fact that there is only a limited number of drugs in which that method can be used without danger of getting the student into the toxic stage. If I emphasized the feature of pathologic physiology in my paper, it was in contradistinction, or rather, in contrast to those experiments in which we are confined entirely to perfectly normal conditions. I think one of the most important things we do in teaching the students with this experimentation on themselves is to find the dose, and the student who has worked on himself with a good sized dose and obtained no effect will not go on and prescribe one one hundred and fiftieth or one two hundredth of a grain of atropin and be satisfied with it. He wants to get the effect. It is what they do not get in those experiments on themselves which is really more important than what they do get. In regard to simplicity of experimentation, I agree with Dr. Sollmann, except that I say we should select only those experiments in which the results are sufficiently striking to get clinical effects. We might as well train the student to use his eyes for pharmacologic effects wherever we can do it in laboratory experimentation.

There is one thing in connection with this question that I think is worth while considering. That is when the student goes out of school, he goes with the idea that research must not be limited entirely to the very best equipped laboratories.

What I have said has applied only to the question of the routine course. Besides that, we have an elective system, and in the electives we assign definite problems to groups of students, a repetition of some interesting features of work that has been published, or, perhaps, modern research, sometimes physiology on animals, sometimes on themselves, and sometimes purely chemical.

As regards the question of the naval hospital corps, I did not have time, and I would probably not, if I had had time, give these students more than a very few of the more striking demonstrations. In the main, we reduced the subject to its very lowest terms, in words of one syllable, but maintained the physiologic viewpoint. As regards the pharmacologist in teaching, even the physiologist who has never had any relation at all to clinical medicine, if he cultivates just a little bit of interest in the problems of pathologic physiology relating to common types of clinical cases, will be able, without departing from his chosen career at all, to introduce a great deal of that phase of the subject into the teaching of his students, and I think in that way can add a great deal to the interest and to the usefulness of the subject.

Bullet in Bladder Wall Ten Years.—The bullet was not found at the operation three days after the accident although it was known to have entered the woman's bladder. Ten years later it had to be removed as it had formed the nucleus of a very large phosphate stone embedded in the right wall. The case was reported by Œconomos at a recent meeting of the Medico-Surgical Society of Greece.

EARLY DIAGNOSIS AND INTRAVENOUS SERUM TREATMENT OF EPIDEMIC CEREBROSPINAL MENINGITIS *

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In large cantonment hospitals where clinical material can be controlled by military methods, where acute disease in large volume may be studied in its earliest as well as its later stages, where necropsy study is possible and where elaborate laboratory equipment is often lacking and the medical officer thrown in consequence on his own resources, bedside observation may well add to the store of medical knowledge.

At the base hospital, Camp Jackson, S. C., attention has been focused on epidemic cerebrospinal meningitis. More than 270 cases of this disease have been studied with the result that a more definite idea of its general character has been established, methods of diagnosis of value have been brought into use, and a more successful treatment has been carried out. This paper is based on the study of the first 265 cases of meningococcus infection observed from November, 1917, to June, 1918. Some of our results have been published in earlier reports.[1]

In the historical development of the knowledge of this disease, the fact that meningitis due to the streptococcus, the pneumococcus, the tubercle bacillus and other organisms is always secondary seems to have been left out of account. The weight of opinion has inclined to the view that meningococcic meningitis is a primary disease; that the organism finds its way from the nasopharynx to the meninges directly through the cribiform plate of the ethmoid bone, or by blood-stream transport, the resulting morbid process being local rather than systemic. This was our point of view when the epidemic came upon us in November, 1917. It soon became apparent, however, that the disease with which we were dealing was not a primary meningitis but a meningococcic sepsis with a secondary meningeal localization. As the epidemic continued and our study widened, this opinion became firmly fixed.

The principal arguments in favor of this view may be briefly summarized. About 45 per cent. of our cases have been recognized before meningitis developed. The duration of the stage of generalized systemic infection without meningitis may vary from a few hours to many days; in the average case it is about forty-eight hours. One of the most extraordinary of our cases had symptoms of a general infection with meningococci in the blood stream two weeks before meningitis developed. The blood culture is positive in about one third of the cases in which this is carefully made.[2]

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* Read before the Section on Practice of Medicine at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

[1] Herrick: The Epidemic of Meningitis at Camp Jackson, The Journal A. M. A., Jan. 26, 1918, p. 227; The Intravenous Serum Treatment of Epidemic Cerebrospinal Meningitis, Arch. Int. Med., April, 1918, p. 541.

[2] By special care in preparation of mediums and other details, Marshall A. Barber, Captain, S. C., N. A., and J. F. Fleming, First Lieutenant, M. R. C., have obtained positive blood cultures in twelve of the last fifteen cases. Recent experience would indicate that with early diagnosis and proper laboratory technic the meningococcus may be grown from the blood in from 50 to 80 per cent. of all cases of epidemic meningococcus infection.

Certain signs and symptoms point to a widespread infection. The petechial rash, the arthritic pains and the complications, such as panophthalmitis, arthritis, pericarditis, endocarditis, pneumonia, pleurisy and orchitis, most of which lesions have shown the meningococcus locally, indicate that in this disease the organism is widely disseminated by the blood stream. A considerable number, about 4 per cent., of examples of meningococcus infection in our experience have not shown meningitis. The notable effect of intravenous serum therapy, particularly in the more severe systemic types of the disease, is added argument. Corroborative reports have also appeared from Europe, where Thomsen and Wulff,[3] Netter,[4] and Aimé and Chéné[5] have contributed added evidence favoring the point of view expressed. Previous to our observations,[1] however, such a conception of the character of this disease had not been used as a basis for diagnosis or treatment.

If meningococcus meningitis is a metastatic or secondary local inflammatory focus, the primary stages of the disease, the sepsis, should be recognized. This we have found possible in a considerable proportion of the cases. Conditions obtaining in a large cantonment in which cooperation between division and regimental surgeons and a base hospital is possible afford opportunities for the study of inaugural symptoms of acute disease that are denied the staffs of civil hospitals. It may be that the diagnosis of this stage of sepsis will seldom be made in civil life. Nevertheless its possibility should be borne in mind and the clinical picture repeatedly brought to general notice.

CHARACTERISTICS OF THE DISEASE

In our experience, meningococcus sepsis is usually characterized by a prodromal period of malaise, of languor, with frequent upper respiratory tract infection, as tonsillitis, pharyngitis or laryngitis, which for a few hours or even days may not incapacitate. Rapidly or gradually the patient becomes ill, weakness increases, and with this, apathy. He likes to be let alone, may be a trifle morose, and loses interest in his ordinary pursuits. There may be diarrhea, tonsillitis or, as in four of our cases, conjunctivitis of meningococcic origin. The temperature rises, but is rarely above 102: the average of our epidemic was 101. Headache, usually frontal, may be present and is described as "bursting." This symptom, however, may be absent. The conjunctivae are reddened, the eyes dull, the pupils usually dilated, the pharynx and tonsils red and in some instances swollen. The tonsillar crypts may contain a grayish exudate. The tongue is coated. The oral secretions are sticky and viscid so that the tongue and palate may be connected by strings of sticky, mucoid saliva. The attitude, manner and facies are perhaps the key to the diagnosis. A dull apathy is always present. The patient is conscious when roused, but lapses promptly into silence and immobility. He does not modulate his voice. He does not use the muscles of expression in responding to questions. There is a striking suspension of all voluntary physical and mental activity. The patient lies on his side with the head bent forward and the knees drawn up, shielding himself with the bedclothing. In several of our cases the disease began as an acute pneumonia, in two as an acute polyarthritis.

In the presence of an epidemic, the one sign of almost diagnostic value is a petechial rash, which was present in about half the cases. This comes out rapidly in crops over the trunk, more rarely the extremities, face, conjunctiva and mucous membrane of the mouth. At necropsy this rash is found on all the serous surfaces, pericardial, peritoneal and pleural. The spots vary in size up to an inch in diameter. In two cases they assumed the form of large vesicles on hemorrhagic bases with scarring on fading. In some of the milder cases there has been a maculopapular rash resembling large rose spots or the beginning eruption of chickenpox. In the severest cases purpura may cover a large portion of the body surface.

The ill balanced activity of the deep reflexes is very characteristic. To illustrate, the right abdominal reflex may be absent, the left normal or increased; the right knee jerk exaggerated, the left normal; the Achilles jerks may be hyperactive and unequal. The inequality of the deep reflexes with a tendency to exaggeration is a very striking feature of this disease and is of the utmost value in early diagnosis, although great care is necessary in estimating inequality. Specific signs and symptoms of meningeal irritation—Kernig's, Brudzinski's stiff neck, etc.—are very often lacking during the early period of the infection.

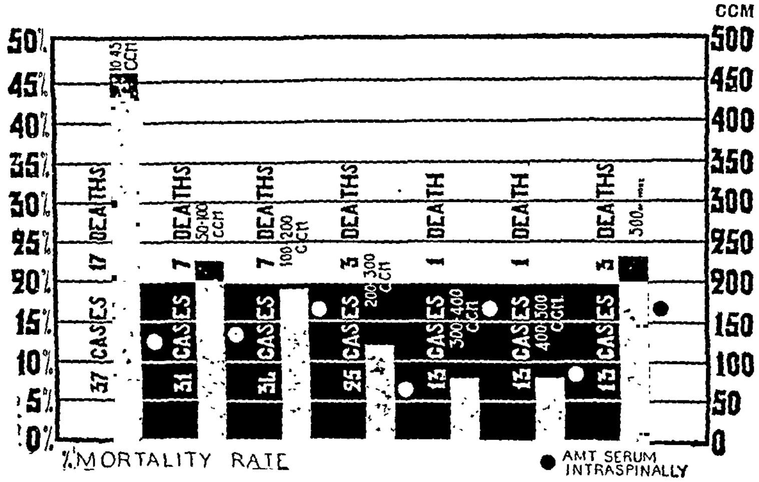

Chart 1.—Mortality in cases treated intraspinally and intravenously.

The spinal fluid in the stage of sepsis, as in other acute febrile diseases, may or may not be under increased pressure and may or may not show a trace of globulin. The cells are not increased and are lymphocytes. After centrifugation and evaporation on the slide of the last cubic centimeter of the contents of the centrifuge tube, fixing and staining, one may find a few extracellular diplococci, which are usually atypical in form and size. If organisms are not found in the fluid obtained by the first lumbar puncture, they frequently appear in that obtained by the second performed three or four hours later.

That the meningococci first invade the cerebrospinal spaces in the region of the choroid plexus seems clear from our observation that repeated puncture at intervals of two hours in many instances brings down the organisms by drainage. In two fulminating cases with speedy death, the spinal fluid obtained by lumbar puncture shortly before death contained no organisms, while that secured at necropsy from the lateral ventricles showed numbers of meningococci.

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[3] Thomsen, O., and Wulff, F.: Meningococcus Infection and Meningitis, Hospitalstidende, 1917, 60, 1192; abstr., The Journal A. M. A., Feb. 16, 1918, p. 498.

[4] Netter: Epidemic Meningitis with Purpura, Rev. de méd., 1917, 35, 33.

[5] Aimé, H., and Chéné, H.: Parameningococcus Septicemia, Paris méd., 1918, 8, 118; abstr., The Journal A. M. A., April 13, 1918, p. 1125.

The inaugural symptoms of acute lobar pneumonia are very like those of meningococcus infections, but apathy is less marked, skin lesions are absent, the deep reflexes, though exaggerated, are usually equally active on either side of the body, and the spinal fluid, though often under increased pressure and containing globulin, gives negative bacteriologic findings.

METHOD OF TREATMENT

Diagnosis having been arrived at by joint clinical and laboratory methods, treatment is begun at the earliest moment possible. No medical emergency demands action more prompt, vigorous, unremitting. Knowledge of and attention to detail brings greater reward in meningococcus sepsis than in almost any other infectious disease. In addition to reduction of mortality, important objects in the treatment of cerebrospinal meningitis are the decrease in the number and severity of the complications and the shortening and mitigation of the course of this extremely painful disease.

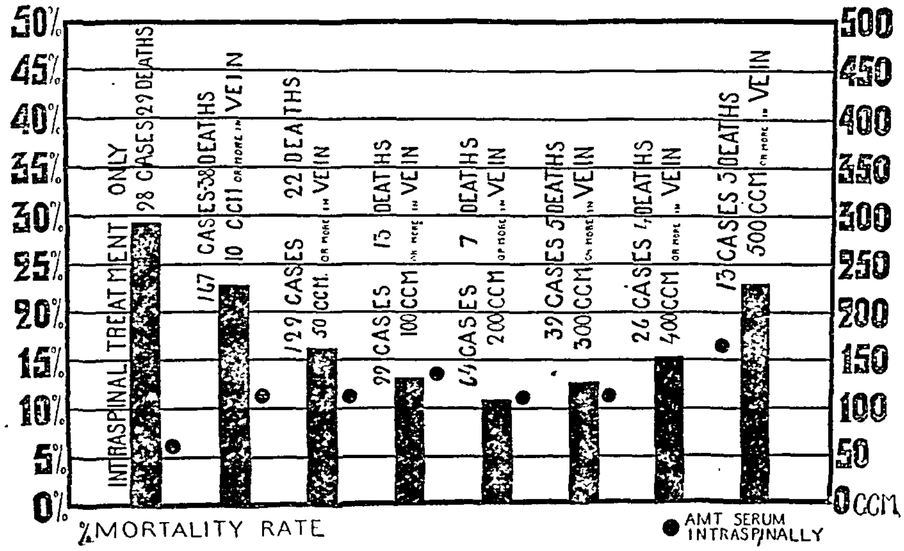

Chart 2.—Mortality in cases treated intraspinally and intravenously.

To accomplish these aims we have based treatment on the conception of the nature of the disease which seems to have been established by observations at the base hospital, Camp Jackson—that the disease is primarily a blood stream infection and, at least in its early stages, should be treated as such. For the success of treatment based on this principle an early diagnosis is important, though not absolutely necessary, as will subsequently appear.

The diagnosis having been established with the least possible delay, the attempt is made to sterilize the blood stream by massive doses of antimeningococcus serum introduced intravenously. The general plan of treatment is as follows: The patient is desensitized by the injection of 1 c.c. of serum subcutaneously. One hour later from 80 to 150 c.c. are given by vein, the first 15 c.c. at the rate of 1 c.c. per minute. The remainder is allowed to flow more rapidly. In the severe cases the injection of this volume of serum is repeated every eight to twelve hours, in the mild cases every twenty-four hours, until the symptoms are under control. The average number of intravenous injections given is four and a half, the average total amount of serum is 400 c.c. The greatest number of intravenous serum injections given in any case is twelve; the highest total amount of serum, 1,050 c.c.

Does antimeningococcus serum sterilize the blood? That this desirable end is accomplished is shown by the results of blood cultures.

In all of our recent cases a blood culture has been made on admission before serum treatment was begun. Approximately one third of such first cultures have been positive. A second culture has been made twenty-four hours later—after from one to three large intravenous injections have been given. In no case has this second culture been positive.

If the spinal fluid is clear there is no interference with the central nervous system. So soon as meningitis develops, lumbar puncture is performed about half an hour after the intravenous injection. Sufficient fluid is withdrawn to reduce the pressure to an approximate normal, and rarely more than 30 c.c. of serum are introduced into the spine. The average number of spinal punctures in the cases treated by this method is seven; the average number of intraspinal serum injections, four. The freest possible drainage is aimed at after the intravenous injection of serum. Since the permeability of the inflamed choroid plexus for antibody has been quite well established, it is believed that drainage at this time results in the introduction of a considerable amount of antibody from the blood into the cerebrospinal spaces. Satisfying proof of this is the prompt disappearance of meningococci from the spinal fluid when these massive intravenous injections are given. With infrequent exceptions the meningococci are not found after the first forty-eight hours. Under the older methods of treatment they were present for a longer time in the average patient.

IMPORTANT POINTS IN INTRAVENOUS SERUM TREATMENT

1. It must be employed with boldness, yet with care. One must be prepared to give from four to eight massive injections by vein of from 80 to 150 c.c. during the acute stages of the disease or a period of from two to four days. There is much more danger in insufficient than in excessive intravenous serum administration. We have, in fact, in 128 cases so treated, had no serious serum effects. Our regrets have been that serum was not more freely used in many of the early cases.

2. The desensitization by subcutaneous injection of 1 c.c. of serum one hour before the introduction of serum into the vein and the cautious injection of the first 15 c.c. at the rate of 1 c.c. per minute are the secrets of safe intravenous serum therapy. Immediate stopping of the injection with the appearance of dyspnea, pallor, cyanosis, vomiting, weak, rapid or irregular pulse or other immediate serum effects is essential. Renewal of the attempt after two or three hours is rarely unsuccessful. Even those patients thoroughly sensitized to serum by earlier courses of treatment can be treated safely with these precautions. It is desirable to give morphin and atropin before the injection, but they are not absolutely necessary. It is well to have these drugs at hand in case of dyspnea or other symptoms of discomfort following the treatment. Epinephrin also should be available.

3. A knowledge of when to stop treatment is important. Harm may result from too much as well as from too little treatment. Particularly is this true of intraspinal injections. The number of convalescents that show evidence of a subacute or chronic caudal myelitis in weakness, atrophy of muscle groups, local vasomotor disturbances, and exaggerated or otherwise altered reflexes of the lower extremities is sufficient to compel attention to the danger of too active interference with such a delicate and vulnerable structure as the cauda equina. One great advantage of intravenous treatment is that the number of intraspinal treatments is reduced. In two serious cases no serum was used intraspinally, drainage being carried out only by lumbar puncture, and reliance being placed on intravenous injections Both patients recovered. We are, however, far from advising abandonment of intraspinal treatment. In fact, all our experience confirms its importance and effectiveness. The local treatment of meningococcus infections when foci are established in meninges, joints, pericardium or other accessible regions is most effective and must not be neglected by too great attention to the blood stream invasion.

In those prolonged cases in which meningococci persist in the spinal fluid and in which the patients are made uncomfortable by intraspinal injections, showing increased opisthotonos, and severe pain in the head or back or lower extremities following the treatment, it is better to omit all interference. At times drainage may be necessary with or without further intravenous injections. Many of these prolonged cases apparently become intolerant of intraspinal serum injections. If satisfactory response does not follow a series of eight or ten intraspinal treatments, it is generally best to cease injecting serum intraspinally, continuing drainage only if there is discomfort from increased intracranial pressure or apparent danger of blocking the foramina.

In relapsing cases the entire cycle of treatment must be repeated with the same thoroughness and care used in the initial course. The organism cultivated from the blood or spinal fluid may be used to determine the presence of agglutinins in the serum employed. Valuable evidence can thus be obtained as to the specificity of the serum for the strain of meningococcus present. This is of the highest importance. Therapeutic results seem to parallel the agglutinin content of the serum for the special strain of meningococcus involved. Commercial serums are frequently lacking in high agglutinin content, and their therapeutic effect is often disappointing. In the absence of desirable results from a given serum, use should promptly be made of serum from another source. This may be of vital moment to the patient. The standardization of serums by governmental authority is an urgent need.

4. Other more general methods of treatment are not to be neglected. Morphin is given without stint to disturbed patients during the first twenty-four or forty-eight hours to control violent symptoms. Large amounts are well tolerated. Chloral and bromid are likewise useful. Of great importance is an adequate supply of liquid. Patients will drink almost without limit, and despite this their tissues often seem to lack fluid. In some of these almost desiccated cases, First Lieut. Arthur M. Dannenberg, M. R. C., has suggested and successfully used intravenous injections of physiologic sodium chlorid solution with or without sodium bicarbonate. Abundant food is required.

RESULTS OF TREATMENT

Of 265 cases, 137 were treated by the older methods of intraspinal therapy alone (Class A), or combined with extremely small amounts—from 10 to 45 c.c.—of serum intravenously (Class B), amounts of serum which given by vein have in our experience little or no influence. One hundred and twenty-eight cases were treated by the combined intraspinal and massive intravenous serotherapy (Class C). Of the 137 cases treated by the older methods, forty-seven patients died, a mortality of 34.3 per cent. Of the 128 treated by the newly developed methods, nineteen died, a mortality of 14.8 per cent.

Cases have been divided roughly into mild and severe according to the intensity of the symptoms, their duration and the presence of important complications.

The mild cases do well under either form of treatment. In fact, figures are slightly in favor of the intraspinal methods in such cases. Of sixty-seven mild cases treated by intraspinal methods alone, one patient died, a mortality of 1.4 per cent. Of thirty mild cases treated by the new methods, two patients died, a mortality of 6.6 per cent. It is in the treatment of the severe types of meningococcic infections that the intravenous methods have the most brilliant results. Of seventy severe cases treated by the older methods, forty-six died, a mortality of 65.7 per cent. Of ninety-eight severe cases treated by the newer methods, seventeen died, a mortality of 17.3 per cent. This happy result in the severe types of meningococcus sepsis deserves particular emphasis. The reduction of mortality from 65.7 to 17.3 per cent. in a similar class of cases is noteworthy.

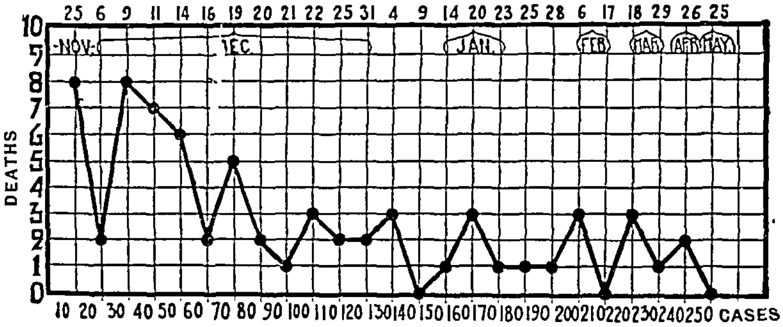

Chart 3.—Mortality rate by tens.

Of the entire 265 cases here reported, 105 were identified before meningitis developed. Seventeen per cent. of these patients treated by all methods died. Of the 160 patients in whose cases treatment by any method was begun after meningitis developed, 30 per cent. died. By this the importance of beginning treatment during the premeningitic stage of sepsis is emphasized. On the other hand, of seventy-six cases recognized late, that is, after the clouding of the spinal fluid, 42.1 per cent., or thirty-two patients treated by the older methods, died. Of eighty-four patients of the same type treated by the newer methods described, 19 per cent. died. This comparative mortality in groups of similar cases, of 42.1 per cent. in one and 19 per cent. in the other, shows that the modified treatment described is of benefit even in those cases in which the disease has begun or accomplished its characteristic selective localization in the meninges. A consideration of importance in this connection is the frequency of positive blood culture in advanced cases, with late recognition. A further point is the late development in many instances of hematogenous foci of suppuration in eye, pericardium, joints or elsewhere.

Table 1 is a statistical summary of the epidemic, giving the mortality in cases classified according to severity, stage of the disease in which diagnosis was made, and method of treatment used.

EFFECT OF TREATMENT ON COMPLICATIONS

In cerebrospinal meningitis not only is life in jeopardy but also the future usefulness of the patient is at stake by reason of the number of complications which may permanently handicap those who recover. Complications of a crippling character are practically always the sequel of the localized process in the central nervous system. The most vulnerable structures are the cranial nerves, which are involved in this order of frequency: sixth, third, second, eighth, seventh. Next in order of importance among the complications is the blocking of foramina with consequent partial or total hydrocephalus. Of interest and military value are the persistent spinal cord symptoms. Many of the convalescents show evidence of a caudal myelitis. In one paraplegic case with necropsy the cauda equina was matted together with a hemorrhagic fibrinopurulent exudate. Symptoms of this myelitis are pain in the back and lower extremities, weakness of the muscles of the thighs and legs, especially the hamstring muscles and quadriceps, frequent atrophy of muscle groups, vasomotor disturbances and altered reflexes. These symptoms may persist for months. Some of the disabilities are doubtless permanent, especially those showing atrophy. They are the apparent result of needle traumatism, irritating serum and local meningococcus infection.

TABLE 1.—MORTALITY IN CASES CLASSIFIED ACCORDING TO SEVERITY AND METHOD OF TREATMENT USED

	Entire Epidemic		Classes A and B*		Class C†	
	No.	Per Cent.‡	No.	Per Cent.	No.	Per Cent.
Number of cases	265	....	137	....	128	....
Deaths	66	24.8	47	34.3	19	14.8
Mild cases	97	3.0	...	....	...	....
Early diagnosis	59	3.3	41	2.4	18	5.5
Late diagnosis	38	2.5	26	0.0	12	8.3
Severe cases	168	37.4	...	....	...	....
Early diagnosis	46	34.7	20	70.0	26	7.6
Late diagnosis	122	38.5	50	64.0	72	20.8

*Classes A and B comprise cases treated by intraspinal methods alone or with only 10 to 45 c.c. of serum intravenously.

†Class C comprises cases treated intraspinally and with from 50 to 800 c.c. of serum intravenously.

‡Percentages are mortality rates.

Of the complications due to the blood stream infection, panophthalmitis is most important since it results in loss of vision in almost all cases. Of less permanent consequence are pericarditis, endocarditis, arthritis, orchitis, pleurisy, pneumonia and peritonitis. These are factors in the acute stages of the disease, but are uncommon during convalescence.

Table 2 shows the comparative frequency of the important complications in the classes of cases treated by the different methods. The four cases of panophthalmitis occurring in Class C were in cases early in the epidemic not given the fully developed treatment. In the last fifty cases treated by large amounts of serum by vein, no instance of panophthalmitis was observed.

The optimal amount of serum to be employed by vein or spine is graphically illustrated by Charts 1 and 2. With increase in the amount of serum used intravenously, there is decrease in the mortality, which is quite marked up to a certain point. At a dosage of about 400 c.c. by vein and 125 c.c. by spine, the mortality is lowest. With larger amounts the mortality rate again rises. The explanation of this later rise is, in our opinion, that the more severe cases receive the more active and prolonged treatment rather than that harm results from the larger dosage of serum.

Treatment of meningococcus infections by this new method, after all, is a matter of judgment in each individual case and cannot be reduced to a mathematical formula. The only general statement that one can safely make is that the average case requires from 400 to 600 c.c. of serum by vein and about 100 c.c. by spine. To give less amounts is to deny the patient the benefit that follows energetic and thorough carrying out of the ideas of therapy developed during our year's experience with 265 cases.

TABLE 2.—FREQUENCY OF COMPLICATIONS

Complications	Classes A and B	Class C
Panophthalmitis	7	4
Pericarditis	8	3
Endocarditis	1	0
Pneumonia	12	8
Pleurisy	2	0
Peritonitis	2	0
Otitis media	8	3
Arthritis*	7	9
Hydrocephalus	2	2
Paralysis, transient or permanent	3	4
Deafness	4	2
Gangrene of toes	0	1

*Including serum arthritis.

The mortality rate at different periods of the epidemic is made graphic by Chart 3.

Acknowledgment is made of the services of the following officers in the epidemic here reported: In the laboratory, Major F. W. Baeslack, M. R. C.; Capts. A. H. Bunce, M. R. C., and Marshall A. Barber, S. C, N A.; First Lieut. J. F. Fleming, M. R. C.; in the clinical work, Major George A. Blakeslee, M. R. C.; Capts. D. L. Walker, H. S. Fincke, E. W. Barron, B. Lattin, G. M. Parkhurst, F. W. Rogers, Q. H. Barney and L. H. Taft, and First Lieuts. A. M. Dannenberg, R. C. Davis, S. A. Cobb and C. E. Woodcock, M. R. C. I am indebted to Miss Edith L. Vincent, Reserve Nurse, A. N. C., for valuable work on statistics and records.

ABSTRACT OF DISCUSSION

Dr. J. Birney Guthrie, New Orleans: The conclusion Major Herrick draws that meningitis is a blood infection first of all, a general sepsis, is, in the main, correct. I will go further and state it as my belief, based on the 138 cases that we had at Camp Beauregard, that the condition is in its beginning a respiratory infection. I believe we are justified in using a term which I have applied—meningococcus grip. We are familiar with a certain picture which we call grip. This does not convey the idea of a specific disease. We know that the clinical picture of grip is one that can be produced by various organisms. There are sufficient data at hand to justify the term, meningococcus grip. This is certainly the clinical picture that Major Herrick drew. There is nothing characteristic in the initial symptoms of any specific infective agent. The flushed face, the hebetude, the dry tongue; in fact, the whole picture is certainly not a specific one. It brings up nothing but an infection. The most frequent mistake in the diagnosis previous to admission to the hospital was calling a pneumonia case "meningitis suspect." The picture of the pneumonia case is the picture, as we saw it, in this premeningitis stage of Major Herrick's. The conclusion comes, as one watches such cases, that there exists this stage of septicemia in meningococcus infection. The prostration is greater than one sees in grip infections due to Pfeiffer's bacillus. It was my own observation and the experience of others that we often made initial spinal punctures and found clear fluid, later to see the picture develop into that of typical meningitis with cloudy fluid and organisms. I cannot agree with the major in his conclusion that the occurrence of a rash stamps the case as a severe one. The rash occurred in 50 per cent. of our cases. Some of the cases of severe rash yielded promptly to treatment and should be classed as mild.

A question of great importance is reinfection. The cerebrospinal meninges may harbor these organisms intact and later allow them to develop and break out again, producing a widespread reinfection of the meninges. We have seen that occur in a number of cases. I believe that the idea of abandoning the initial therapeutic puncture and injecting serum into the cerebrospinal canal is wrong. I think we should give the serum by this route anyway. If organisms are found in the blood stream it would be the safest plan to follow. Theoretically, it would seem to be indicated. The breaking down of the meningeal choroid complex, Major Herrick assumes, is a result of the meningococcus infection. I do not think this is correct, or that this occurs in the absence of a local nidus of infection on the choroid plexus. We know that the introduction of horse serum into the cerebrospinal canal does affect the permeability of the meningeal choroid complex from the blood to the cerebrospinal canal. This would constitute an additional indication to carry out the injection of the serum early into the cerebrospinal canal, to be followed by repeated introduction of serum by both intravenous and intraspinal routes.

Dr. P. S. Schenk, Norfolk, Va.: I should like to ask Major Herrick what his opinion is in regard to the control of carriers. Beginning in January of this year we had quite an outbreak of meningitis at the Naval Base, near Norfolk. This outbreak was followed by about forty cases in Norfolk. There were over 400 direct contacts in the homes of these cases, but we did not have a single case develop in any of those contacts. At the Naval Base, and also in Norfolk, we were very careful in ferreting out the carriers, yet notwithstanding the fact that they had a very large number of carriers at the Naval Base, it does seem that the carrier proposition has no particular influence on the incidence of the disease. In the several cantonments throughout the country, where meningitis prevailed, it was a striking fact that in many of those where there were the greatest number of carriers they had the fewest cases. We have not had a case of epidemic meningitis in Norfolk for many years previous to this outbreak at the Base. We traced 90 per cent. of our cases, however, directly to this source; either the brother, father, husband or some other member of the family who developed the disease in Norfolk, worked at the Base. It is a well-established fact that it is extremely rare to contract a case of meningitis directly from another case of developed meningitis. It seems to be a disposition to ignore the carrier, except, perhaps, those that had been in immediate contact, and yet not a single one of our cases had been in contact with a person who had been directly exposed to the disease.

Dr. W. L. Bierring, Des Moines: I want to call attention to an interesting observation by Dr. Preble presented to this section a number of years ago on the clinical similarity between acute pneumonia due to the pneumococcus and epidemic cerebrospinal fever, in that way establishing a relationship between the two causative organisms. Both diseases are ushered in by a chill, followed by a rapid rise in temperature; both have a similar fever curve, with a drop by crisis. A polymorphonuclear leukocytosis and a chlorid retention is peculiar to both conditions, and each corresponding in time to the fever course. The cultural characteristics of the two causative organisms are practically identical. All of which offers an explanation of the early finding of the meningococcus in the blood stream, suggesting a hematogenous infection, which gives to it the same conception that is held for pneumococcus infections. Furthermore, it bears out the good therapeutic results reported in Major Herrick's paper.

Col. F. F. Russell, Washington, D. C.: I do not know that this is the best time to consider the carrier question. Dr. Herrick's paper is so important in itself. I do not think the profession has yet agreed as to what is the best way to handle the carrier. I think all of us agree that without the carrier we would have no spread of the disease. We must recognize the carrier and control him. The difficulty is to know which carrier is the serious one and which one is negligible. We know that some carry pure cultures constantly and others harbor only a few organisms. It seems, therefore, that the chronic carrier with large numbers of meningococci regularly present is dangerous. If we can take care of that man, we will cut down the number of cases. If you study the statistics of last winter you will find that at those places where the carrier work was done early the epidemic diminished. There were one or two camps where the epidemic continued longer than the average; and I think in those you will find that they did not control their carriers as in the places where the epidemic stopped.

Dr. W. W. Hamburger, Chicago: Does Major Herrick consider that all cases of meningitis are primarily cases of sepsis? For instance, at Camp Taylor, we had forty-six cases and we made early blood cultures, eight or ten in all. In none of those blood cultures was there a positive finding of meningococci, and in all of these cases there was no rash, except in one case, in which there was urticaria. Our mortality in these cases was 16 per cent. treated by the old method. I would like to know whether Major Herrick considers that all cases of cerebrospinal meningitis are primary sepsis and secondary meningitis, and whether he would feel that they should all be treated intravenously in addition to intraspinally.

Dr. William W. Herrick, New York: I am glad that Colonel Russell treated the question of carriers, because I have not made up my mind about it. I believe that meningitis is primarily a sepsis just as pneumonia is a blood stream invasion by the pneumococcus. I believe that every case of meningitis, no matter in what stage recognized, should have intravenous treatment. We began our treatment with the commercial serums. They did not have a satisfactory effect. We were then fortunate enough to get a supply from the Rockefeller Institute and the New York City Board of Health, which gave better results. Later in the winter we returned to commercial serum, which by that time seemed to have improved. We now use the serum from the Rockefeller Institute, that from the New York City and state boards of health and two or three commercial serums. If a given case does not respond promptly to one serum, we change and give serum from some other source. That is a point of very great importance in the treatment of the disease. The largest intravenous dose has been 150 c.c. The greatest number of such doses in any one case has been ten. The greatest total amount of serum given to any individual has been 800 c.c.

As to the criteria of mild and severe cases, that is a rough clinical judgment depending on the severity of the symptoms. The respiratory tract infection is most important. It is common in by far the larger proportion of the cases. This phase of the disease requires study. The similarity between pneumonia and meningitis came very prominently to our attention early in the epidemic. We thought we had made a discovery, but later found that Dr. Osler had described this many years ago.

The repetition of the cycle of treatment in the resistant cases is most important. If it is a case of reinfection, repeat the whole course vigorously and persistently. We have had a number of these cases. One patient has had three attacks of the disease since last December. We have noticed no hemorrhagic vomitus. Hemorrhages into the meninges have not been a feature in the epidemic. In only one of our thirty-seven necropsies was hemorrhage a factor in the death.

Red Cross War Fund Totals $176,528,158.—The Red Cross issues the following: The total of the second Red Cross war fund continues to grow, and the returns still are incomplete. Reports from the various divisions received since the last figures were printed, July 1, show contributions amounting to $176,528,158.

DIGITALIS THERAPY *

JOSEPH H. PRATT, M.D.
BOSTON

In the year 1785 a small book was published in England entitled "An Account of the Foxglove and Some of Its Medical Uses." It was written by William Withering,[1] a distinguished physician of Birmingham. In the preface he states that "the use of the foxglove is getting abroad and it is better the world should derive some instruction, than that the lives of men should be hazarded by its unguarded exhibition, or that a medicine of so much efficacy should be condemned and rejected as dangerous and unmanageable." He presented careful notes on 163 cases of dropsy in which digitalis was given, and describes the method of collecting, preparing and administering the drug. It was in dropsy of cardiac origin that he exhibited this drug with remarkable success. They were, as he says, "cases lost to the common run of practice and only snatched from destruction by the efficacy of digitalis." He reported his failures as well as his successes.

He recognized that digitalis did not have a diuretic action in all cases of dropsy and that the best results were obtained if "the pulse be feeble or intermitting, the countenance pale, the lips livid, the swollen belly soft and fluctuating or the anasarcous limbs readily pitting under the pressure of the finger." His book carries conviction to the reader that the writer was a keen and accurate observer and "without any unjust predilection in favor of the medicine."

Until recently I did not know that Withering's splendid work was practically unnoticed by teachers and students of cardiac disease, in England and America at least, for more than a century. It would be an interesting quest to find and do honor to the man who discovered Withering and impressed the world with the value of his work. Hope, Stokes, Latham and Walshe and our own Austin Flint, masters of medicine though they were, paid no attention to Withering's teachings and never discovered for themselves the great value of digitalis in cardiac failure when properly administered. The neglect of this drug and of Withering's discovery until modern times is a striking illustration of the difficulty that new truths sometimes have in gaining acceptance.

I first learned of William Withering and his work on digitalis from my teacher and friend, Sir William Osler. One day while in Boston, although he had only a few hours in the city, he proposed that we go to the Medical Library and look up old Withering's book. With characteristic kindness and helpfulness he wanted me to learn from those striking case reports the value of digitalis when properly administered. In the first edition of his textbook, Osler gives the credit due Withering for introducing digitalis into practice.

In the first general treatise on heart disease to be published in English, that of Allan Burns,[2] Edinburgh, 1809, the only reference to Withering is the following sentence: "We often find, that in the early stages of dropsy, while the patients are, as Dr. Withering observes, robust, and of firm fiber, that the diuretics make no impression, but that when the strength is more wasted, the very same medicines cure the disease."

It is true that, as a number of recent writers have pointed out, Burns in another place does declare that digitalis has a very powerful effect in obviating the urgency of the symptoms in dilatation of the heart. But the force of this statement is weakened by the context. The remedy he relied on chiefly was a seton introduced into the precordial region. He did this, he says, to prevent the occurrence of inflammation, and adds, "With a similar view, we occasionally prescribe digitalis." If dropsy was present he gave diuretics, not trusting to digitalis alone, and in addition always administered laxatives joined with carminatives.

Digitalis will be of no real service in the treatment of heart failure unless it is given in an active form and in sufficient amount to produce a physiologic effect.

Withering in 1785 gave the following directions for the administration of digitalis: "Let the medicine be continued until it either acts on the kidneys, the stomach, the pulse, or the bowels; let it be stopped upon the first appearance of any one of these effects." Now it is an amazing fact that in spite of the extraordinary success with which Withering exhibited the drug according to this rule in dropsy of cardiac origin, Sir James Mackenzie, working over a hundred years later, was the first clinician to demonstrate conclusively the correctness of Withering's instructions regarding the administration of digitalis. For his studies on digitalis,[3] published in 1911, he records the careful and detailed observations in a series of cases treated with digitalis in his wards at the Mount Vernon Hospital, London. Convincing evidence was presented that the drug yielded brilliant results in certain forms of cardiac failure when pushed to the physiologic limit.

Withering concluded the preface to his great work with these prophetic words: "After all, in spite of opinion, prejudice or error, time will fix the real value upon this discovery and determine whether I have imposed upon myself and others, or contributed to the benefit of science and mankind." At length time has shown the real value of Withering's discovery, but it took 125 years to do it. For some strange reason difficult to explain, digitalis has been regarded as a dangerous drug in therapeutic doses by generation after generation of clinical teachers and writers. This fear of the drug explains the failure of most practitioners to obtain any benefit even in those conditions in which it gives the most brilliant results when properly administered.

Failure to obtain results in suitable cases is due (1) to the employment of too small doses and of an insufficient amount of the active drug, and (2) to the use of weak or inert preparations.

STRENGTH OF VARIOUS SAMPLES OF THE LEAF

During my student days I never saw a case in which striking improvement was produced by digitalis, nor did I ever obtain any undoubted benefit from its use during the first years of my practice, although I treated many cases of cardiac failure. Lack of success

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* Read before the Section on Practice of Medicine at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

[1] Withering, William: An Account of the Foxglove and Some of Its Medical Uses, with Practical Remarks on Dropsy and Other Diseases, Birmingham, 1785, p. 207.

[2] Burns, Allan: Observations on Some of the Most Frequent and Important Diseases of the Heart, Edinburgh, 1809, p. 102.

[3] Mackenzie, James: Heart, 1911, 2, 273.

caused me to try a number of different tinctures and infusions. Finally suspecting that the digitalis available in Boston was of poor quality, I had a local druggist import directly from Germany some of Merck's powdered digitalis leaf. I first gave it to a woman with auricular fibrillation and heart failure, who had been under observation for more than a year. It was a typical case with dyspnea, dropsy and a troublesome cough. In spite of the administration of digitalis I had never found the pulse rate below 120 during the preceding six months. Improvement from the new digitalis was noted in a few days. The pulse was slowed to 72 and the symptoms of cardiac failure lessened so that the patient was able to do her housework. That was in December, 1905.

Four years later I tested by the frog method nine samples of digitalis leaf obtained from six of the leading druggists of Boston and vicinity, and from two hospitals. They were all of low strength as shown by the biologic test.[4] The only strong digitalis leaf found on sale was the Merck preparation that was carried in stock by the single druggist who imported it. In 1909 a bottle of Caesar and Loretz's titrated (standardized strength) leaf was obtained from Germany and shown by a series of tests to be twice as strong as the best leaf furnished by American drug houses.

Although *Digitalis purpurea* grows wild in California, Oregon and Washington, we have always imported our supply from England and Germany. For some years before the war, German digitalis was coming more and more into use. No American house is yet supplying a digitalis so strong and so reliable as the titrated leaf put out by Caesar and Loretz of Halle. I used this almost exclusively from 1909 to 1915.

In 1916, I obtained some wild digitalis leaf that was collected in Hobart, Wash., by my friend, Dr. Harris B. Haskell. This proved to be very active; in fact, the leaf of the first year plants was as strong as any I have ever used. It was twice the strength demanded by the pharmacopeia.

In 1916 and 1917, Morrison and I studied twenty-four specimens of American digitalis, both wild and cultivated, grown in different parts of the country. Only six of these were stronger than the pharmacopeial standard, three of the required strength, and the remaining fifteen weaker. Of the three most active leaves, one was from Washington, one from Virginia and the third from the experimental station of the University of Minnesota. Our studies showed that cultivated leaf may be as strong as that of the wild plant. Two specimens of Washington leaf of the crop of 1916 were weak. In 1917, leaf gathered at the same place (Hobart, Wash.), and at the same season of the year and treated in the same way as the strongest leaf of 1916, was found to be so weak as to be valueless in ordinary therapeutic doses.

We have learned that active leaf can be obtained at times at least as far North and East as Portland, Maine, as far South as Virginia, in the Middle West and in the Rocky Mountains, and that good digitalis grows wild in great quantities in parts of Oregon and Washington. In spite of the fact that excellent digitalis both wild and cultivated grows on American soil the large wholesale drug houses supply an inferior digitalis, and there is great difficulty at this time, and there has been for the past year, in getting good preparations. Steps should be taken to remedy this difficulty. Specimens of wild Oregon and Washington leaf should be tested, and when found to be strong it should be gathered in large quantities. A good leaf may preserve its strength for several years. Tinctures deteriorate much more rapidly than the dried leaf.

EMPLOYMENT OF DIGITALIS

For the past eight years I have followed the rule of Withering and pushed the drug until a physiologic effect was obtained. My experience with this method has demonstrated that large doses are not dangerous when the cases are carefully followed, and that the drug gives brilliant results in heart failure associated with auricular fibrillation, as Mackenzie has shown, and that it is beneficial in some cases of heart failure with normal rhythm.

In hearts with normal rhythm, slowing of the pulse is still generally regarded as a measure of digitalis action but my observations confirm the findings of Mackenzie[3] and Cohn and Fraser[5] that the drug rarely slows the pulse except in auricular fibrillation until toxic symptoms are produced. In auricular fibrillation slowing of the pulse in the vast majority of cases can be brought about readily and quickly if an active preparation is given in the proper amount. The action of strong digitalis in slowing the rapid pulse of auricular fibrillation is so definite that it furnishes a simple and reliable means for determining the activity of any digitalis preparation.

Physicians should learn to recognize the presence of coupled beats with the stethoscope. When they appear, the drug should at once be discontinued. The development of heart block may be followed by a striking improvement in the condition of the patient. Vomiting when induced by digitalis is quite distressing. It may be preceded by a day or two of complete anorexia. When this loss of appetite develops suddenly in a patient I usually discontinue the drug, knowing that it is an indication that the physiologic limit has been reached and that distressing nausea and vomiting will follow if more digitalis is given.

It makes no difference in what form digitalis is given, whether as the fresh tincture, or the powdered leaf in capsules or pills, provided an *active* leaf is used. The use of the infusion should be condemned. It has no advantages. It may upset the stomach and it loses strength quickly. If a tincture is employed, minims or cubic centimeters, not drops, should be used. As I pointed out in a previous paper, it usually takes from 35 to 40 drops to equal 15 minims or 1 c.c. if an ordinary medicine dropper is used. Recently I saw a case with a physician who thought he had given a rather large amount of digitalis in forty-eight hours to a patient, 2 c.c. four times a day, or 16 c.c. in all. He made the common mistake of reckoning 15 drops as 1 c.c. Investigation showed that it took 55 drops with the medicine dropper used, so the patient had received only 4.3 c.c.—less than a third of the calculated amount.

The ordinary dose of a strong digitalis preparation is 1 c.c. of the tincture or 0.1 gm. of the powder three or four times a day. The physiologic effect is usually obtained when 2 to 2.5 gm. of the leaf are taken within from five to seven days. If more rapid action is desired, 1 gm. may be given within the first twenty-four hours.

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[4] Pratt, J. H.: Boston Med. and Surg. Jour., 1910, **163**, 279.

[5] Cohn, A., and Fraser, F.: Tr. XVII International Congress of Medicine, Sec. VI, Medicine, London, 1914.

I have occasionally used some of the weaker preparations in doses of 40 minims and even 1 dram without any result. I have given a tincture of digitalis supplied to the Army by a leading American pharmaceutical house in dram doses every three hours for twenty-four hours to a pneumonia patient without affecting the pulse or disturbing the stomach.

Whether a weak leaf in very large doses would yield as good results as a strong leaf in ordinary doses is unknown. This is a question that should be settled.

In auricular fibrillation, after the patient has been well digitalized the slow pulse should be maintained by the constant administration of sufficient digitalis to maintain the rate below 80 and to prevent the occurrence of a pulse deficit. In some cases the circulation is best maintained at a much lower heart rate. In one patient under constant administration of digitalis the pulse has rarely been above 50 during a period of two years.

Digitalis is indicated in every form of heart failure. The best results are seen in cases of auricular fibrillation. It rarely seems to be of benefit in myocardial weakness due to aortic insufficiency, but this valvular lesion is not a contraindication to its use, as was taught by Corrigan.

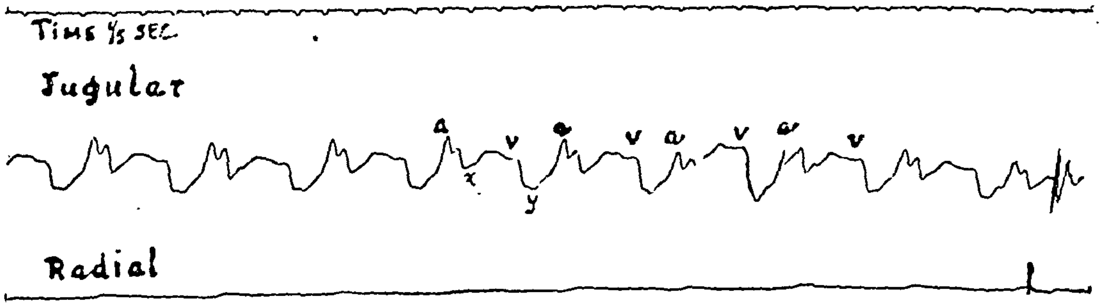

Fig. 1.—Tracing of jugular and radial pulses, taken *March 8*, showing a well marked venous pulse with a distinct *a* wave.

DIFFERENT PREPARATIONS

Many attempts have been made to substitute the single glucosids of digitalis for the crude drug in therapy. The "German digitalin" is a favorite with many physicians. This is a mixture of alkaloids of varying strength.[6] It is cheap, which may explain its popularity. It is sometimes put out in tablets of 1/100 grain for subcutaneous use, although 100 times that dose has been given without injurious effect. There seems no justification for its use.

The "French digitalin" is an entirely different substance. The fact that two different extractives are put out under the same name has led to much confusion. The French digitalin is obtained by the method of Homolle. It consists chiefly of pure digitalin (digitalinum verum of Kiliani). It is sold in the form of Natavelle's granules. Each granule contains 1/240 grain (0.25 mg.), and is equivalent to 1½ grains (0.1 gm.) of good digitalis leaf. It is a trustworthy preparation[7] and deserves more extensive use in this country.

Certain proprietary preparations of digitalis have had an extensive sale during the past ten years. Chief of these are digalen, digipuratum and digifolin. The first of these, digalen, has been most extensively advertised, and extravagant claims made for it. It has been found to be a weak digitalis preparation. The statement of the manufacturers that it does not produce nausea or vomiting in therapeutic doses seems justified by its lack of strength. The experiments of Hatcher and Eggleston[8] have shown that the gastric disturbances induced by digitalis are due to the action of the drug on the central nervous system and not on the gastric mucous membrane.

German digipuratum is an active digitalis made from carefully selected leaves, and the tablets contain the proper dose for ordinary use. Naturally physicians who had been employing weak tinctures obtained better results when they gave digipuratum. While using the strong titrated leaf of Caesar and Loretz, I never found any advantage in giving digipuratum.

Digifolin is a Swiss preparation that is similar to the German made digipuratum. Both produce nausea and vomiting when pushed, as do all forms of active digitalis.

A warning should be sounded against the use of the tincture of strophanthus as a substitute for digitalis. The reason for this is the variability and uncertainty of its absorption from the gastro-intestinal tract. A tincture of strophanthus, used at the Massachusetts General Hospital in the ordinary doses without any untoward result or even definite physiologic effect, was tested in the laboratory by Wesselhoeft and myself on frogs by the one hour method and found to be 100 times as strong as a good digitalis tincture. That the patients not only lived but manifested no toxic symptoms is good evidence that the drug was not absorbed from the stomach or intestine. If by chance absorption of such a toxic preparation should occur, the result would be disastrous, and fatal cases are found in the literature. There is no justification for the use of a drug that usually has no action on the heart because not absorbed, and which if well absorbed, as sometimes happens, would injure or even kill the patient.

STROPHANTHIN AND OUABAIN

Strophanthin is a remedy which, if given intravenously, may save lives that would otherwise be lost. It has not received the attention it deserves, and at the present day is more often condemned as a dangerous drug than praised for its undoubted value in strengthening the heart. I have seen it restore the circulation after the pulse at the wrist could not be felt or the heart sounds heard. Many deaths have doubtless resulted from its employment in too large doses, far more I know than the published reports would indicate. Boehringer's preparation of amorphous strophanthin has been chiefly employed. The proper dose of this is 0.5 mg., and I have never heard of any death following the injection of this amount to a patient who had not received digitalis during the preceding forty-eight hours.

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[6] Roth, G.: Digitalis Standardization, Bull. 102, Hyg. Lab., U. S. P. H. S., Washington, 1916.

[7] Balfour, G.: The Senile Heart, London, 1896, Ed. 2, p. 271. Mackenzie, James: Diseases of the Heart, London, 1913, Ed. 3, p. 378.

[8] Hatcher, R., and Eggleston, C.: Jour. Pharmacol. and Exper. Therap., 1912, 4, 113.

The fatalities that have occurred resulted from the administration of the maximum dose of 1 mg., which, when the drug was first used, was regarded as the regular dose to be employed. Fraenkel,[9] who introduced the intravenous use of amorphous strophanthin, gave 425 injections in 1913 without any injurious effect. Ouabain, or crystalline strophanthin, has not been so extensively used clinically, and the proper dosage is not yet definitely established. Ouabain obtained by Thoms' method of extraction seems to be more toxic than that prepared by the method of Arnaud. As Thoms' ouabain is twice as strong as Boehringer's amorphous strophanthin, the use of larger doses than 0.25 mg. may prove to be dangerous. Vaquez and Lutembacher[10] have given 2,000 injections of Arnaud's crystalline strophanthin in 0.5 mg. doses without any untoward action. I have obtained only benefit from strophanthin; but I never give more than 0.5 mg. of the amorphous strophanthin at a dose and have never repeated it oftener than once in twenty-four hours.

Burroughs and Wellcome supply amorphous strophanthin in tablets of 1/500 grain for intravenous use. Agassiz,[11] using this preparation, found that a dose of 1/250 grain had a definite effect in reducing the pulse rate in cases of auricular fibrillation. From a study of the literature he concluded that definite benefit from strophanthin had been obtained only in cases of heart failure associated with auricular fibrillation. Rowland, working under Mackenzie, concluded, according to a statement made in the textbook of the latter, that in cases of heart failure with regular rhythm, strophanthin intravenously had very little effect on the general condition and no effect on the pulse rate or blood pressure. I have recently used Burroughs and Wellcome's preparation, giving four tablets equal to 1/125 grain or 0.52 mg. in a single dose with benefit and without untoward results. I have obtained from strophanthin given intravenously striking benefit in some cases of heart failure with regular rhythm. As improvement has occurred in forms of heart failure that are rarely, if ever, relieved by digitalis, it suggests at least that strophanthin given intravenously exerts an effect on the contractility or tonicity of the heart muscle that is not obtained from digitalis in therapeutic doses.

I shall report one case in detail, as the evidence is most convincing as presented in the notes that the strophanthin had a prompt and definite effect in increasing the strength of the heart. The tracing of the venous pulse shows that the rhythm was normal. The pulse was not slowed by the strophanthin, but there was a definite rise in the blood pressure. The dilatation of the heart as determined by the percussion of the cardiac outline was not diminished. From these facts the conclusion seems justifiable that the benefit was due to the action of the strophanthin on the contractility of the heart muscle.

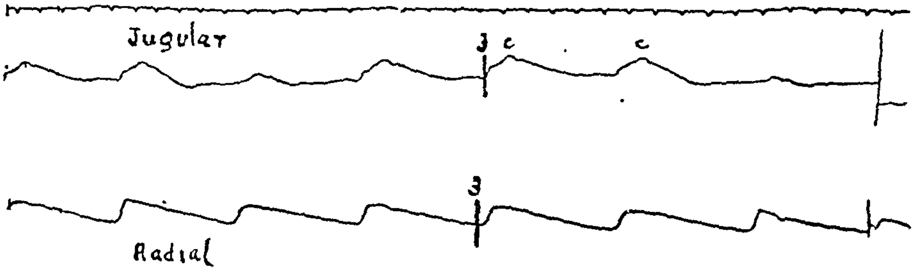

Fig. 2.—Tracing, taken March 15, the day following the intravenous injection of strophanthin. The pulse has disappeared, only the carotid wave being obtained in the neck. The radial tracing shows a regular rhythm.

REPORT OF CASE

Heart failure in a case with normal rhythm; urgent dyspnea, Cheyne-Stokes breathing; chronic interstitial nephritis; great improvement following one intravenous injection of strophanthin.

History.—D. N., a man, aged 59, case 195389, Massachusetts General Hospital, Service of Dr. Edsall, when admitted, May 8, was at once placed on the danger list. There was marked Cheyne-Stokes breathing. It was thought that he was suffering from renal asthma, and hence was treated as having uremia. Treatment consisted of hot air baths, magnesium sulphate and morphin. This treatment was continued until May 13, when I was given charge of the case.

Bedside Notes.—May 13, breathing was labored, 19 a minute, typically Cheyne-Stokes in type; there were apneic periods lasting from fourteen to twenty-five seconds. The left border of the heart was in the axilla 17.5 cm. from the median line. The apex was not felt but was made out by percussion in the sixth interspace. The left border of absolute and relative cardiac dulness coincided. There was no dulness to the right of the sternum. The lower border of pulmonary resonance was in the fourth space, right nipple line. There was a systolic murmur at the apex. The rate was 76 about one hour after a hot air bath. The lower border of liver dulness was at the costal margin. The abdomen was distended, bulging in the flanks, but tympanitic throughout.

May 14, the patient had a poor night, being much disturbed by coughing. He felt very weary. He was restless and sat upright, although supplied with four pillows and a bed rest. Breathing was labored, definitely Cheyne-Stokes, apneic periods of thirty seconds being observed. The rate was 18 per minute. The sternomastoids were prominent, and contracted markedly with each inspiration. There was fulness above the inner third of the clavicles because of venous engorgement, and two waves were distinctly seen in the marked venous pulse on both sides of the neck. There was slight impairment of resonance at both bases of the lungs, more so on the left. Breathing was loud and harsh over the entire right front. At times fine sibilant râles were heard during expiration at the right base. At the left base there were fairly numerous, fine, moist râles. Early in the examination distinct bronchial respiration was noted at the left base which later became much diminished and not bronchial. Vocal fremitus was normal. A diffuse cardiac impulse could be seen 7 cm. outside the nipple line, but was not definitely palpable. The left border of absolute and relative cardiac dulness was in the midaxilla in the sixth interspace. The upper border of absolute cardiac dulness was at the third left costal cartilage. The right border of absolute and relative cardiac dulness at the fourth space was 3 cm. to the right of the midline. The lower limit of pulmonary resonance was at the fifth rib in the right nipple line. The cardiohepatic angle was acute. There was dulness over Traube's semilunar space. The heart sounds were well heard in the midaxilla and were of good quality over the entire precordium, excepting in the fourth and fifth interspace, 3 cm. to the left of the midline, where a blowing systolic murmur replaced the first sound. The aortic second and pulmonic second sounds were both possibly pathologically accentuated. The abdomen was full, rather tense and tympanitic throughout. There was slight fulness but no definite edema of ankles. There was slight hard edema over the sacral regions.

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[9] Fraenkel, A.: Therap. d. Gegenw., 1914, **16**, 200.

[10] Vaquez, H., and Lutembacher, R.: Arch. d. mal. du cocur, 1917, **10**, 461.

[11] Agassiz, C.: Heart, 1912, **3**, 353.

May 14, at 11:45 a. m., 0.5 mg. of strophanthin was given intravenously. The blood pressure just prior to the injection was 175 mm. of mercury; the blood pressure fifteen minutes after the administration of strophanthin was 205 mm.; ten minutes later it was 202, and the pulse 73. At 12:45, the blood pressure was 202, and the pulse 79. Within fifteen minutes after the administration of strophanthin the breathing became less labored and the Cheyne-Stokes breathing gradually became less, and at 1 p. m. it was noted that it had ceased. At this time the breathing had become abdominal in type; prior to the injection the respiratory movements were largely confined to the uppermost part of the thorax. At 1 p. m. the patient had lost his anxious expression, and the restless movements of his body had ceased. He said he felt very much better and "less tired."

May 15, when seen in the morning the patient was asleep; the respirations were quiet. There were slight movements of the lower part of the thorax, but this may have been due to the muscular twitching. Later, when a careful examination was made, the respirations were regular, and 19 to the minute. The patient was then awake. The night report stated that he had had the best night's rest since his admission. He coughed occasionally and raised some mucopurulent expectoration. His expression was placid; he dozed frequently and said that he felt perfectly comfortable. The left border of cardiac dulness was in the midaxilla, 17 cm. from the median line in the sixth space; the upper border of absolute cardiac dulness was at the fourth costal cartilage; the right base of absolute cardiac dulness was 2 cm. to the right of the median line. The lower border of pulmonary resonance was at the sixth rib, right mammillary line. The systolic blood pressure was 185 mm. of mercury and the diastolic 125 at 11:35 a. m. The venous pulse in the neck was no longer distinctly visible. In tracings made of this no *a* or *v* waves could be made out.

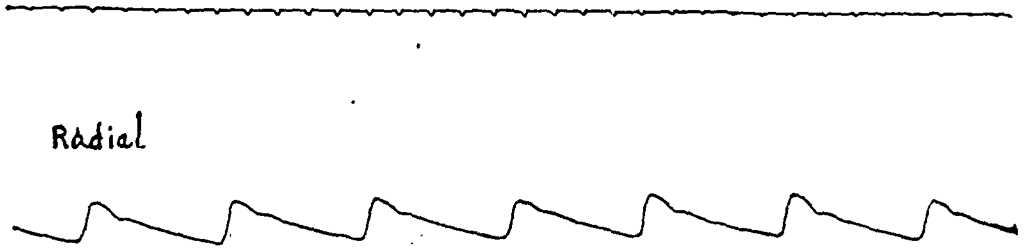

Fig. 3.—Tracing, taken May 22, of radial pulse showing normal rhythm.

At 11:30 a. m., while I was observing the patient, Cheyne-Stokes breathing was resumed and the patient became a little restless and the expression somewhat anxious. An intravenous injection of 0.3 mg. of strophanthin was given, and administration of digitalis begun, 0.1 gm. thrice daily. This was continued until 2 gm. were taken.

May 16, the respirations were regular, 19 per minute. The pulse was 72 and regular. The patient was comfortable except for dull pains in the legs and ankle. He was lying down low on the bed rest and took greater interest in his surroundings. The heart borders were the same. There was no edema.

May 18, the cough was much less. Respirations were quiet. There was no Cheyne-Stokes breathing. The rate was 19. There was vesicular breathing in both backs. There were numerous moist râles at the left base, but none at the right. Examination of the heart revealed a visible systolic outward thrust, 15 cm. out in the sixth space. At 11:45, Cheyne-Stokes breathing was observed with short apneic periods.

May 20, there was no cough. The pulse was 68.

May 21, tracing showed an occasional extrasystole not felt in the radial pulse; but a long pause was noted at the wrist.

May 22, the pulse was 68. The respirations were 20. There were no dropped beats.

May 25, there was one dropped beat in a minute. The apex impulse was high and quite forcible in the sixth interspace, 14 cm. out. The left border of relative cardiac dulness was 16.5 cm.; the left border of absolute dulness, 13.5; right, 2 cm. There was a distinct venous pulse. Examination of the lungs revealed no dulness or râles.

May 26, the pulse was 70. The patient was now comfortable.

May 31, he was up for half an hour with no bad effects.

June 9, he was up two hours.

June 13, the patient was discharged.

In this case of heart failure with normal rhythm, as shown by the polygraph tracings, severe dyspnea, which had been present continuously since the patient's admission to the hospital—a period of eight days—was lessened within fifteen minutes after the intravenous injection of 0.5 mg. of strophanthin, and within one hour and fifteen minutes the marked Cheyne-Stokes breathing entirely disappeared. The blood pressure was raised 30 mm. of mercury in the fifteen minutes following the injection.

SUMMARY

Much of the digitalis now being used in the country is of poor quality.

Active leaf grows in various parts of the United States from Maine to the Pacific coast.

Digitalis from the same locality may vary greatly in strength from year to year.

To obtain the full therapeutic effect, the drug should be pushed until it acts on the stomach, the bowels or the pulse, and should then be discontinued for a few days at least.

Amorphous strophanthin given intravenously may exert a direct and beneficial action on the heart muscle that has not been observed when digitalis was given to patients.

ABSTRACT OF DISCUSSION

Sir James Mackenzie, London, England: I can support Dr. Pratt in nearly everything he says, but I have never found an inefficient sample in England. There is another point: I am doing a little bit of propaganda work. Many years ago it used to grieve me to see men go from me to Germany and come back with a blood pressure instrument and think they were heart specialists. For some years the English system gradually fell into disuse and everybody went off to worship false gods. The physician, instead of being a superman and saying what he will do to the surgeon, is inferior to them all. The physician is subject now to the surgeon and to the pathologist who is making a vaccine. John Hunter was an ordinary physician, but he was the greatest surgeon of the day, the greatest physician of the day and the greatest pathologist of the day, and if you will read about him you will find he knew more about medicine than anybody. He was the man who described gallstone colic and he was the first to describe Cheyne-Stokes breathing. He was a careful observer, following the English system of observation. Professor Cushny first told me about Withering. I had analyzed the cases that I had treated with digitalis, and then I read Withering's book, and I found that Withering had anticipated me. His observations about auricular fibrillation were put in a better paper than all the pharmacologists and physiologists in the world have ever written. I want you to think of that and what that means.

Fly Poison.—Phelps and Stevenson, of the United States Public Health Service, recommend an aqueous solution of sodium salicylate sweetened with brown sugar as fly poison. Three teaspoonfuls of this powder in a pint of water is the proper dilution. This fly poison has the distinct advantage of being nonpoisonous to children, while equally as effective as the more poisonous substances employed.

INTESTINAL PARASITES IN CHILDREN[*]

H. M. McCLANAHAN, M.D.
OMAHA

Every animal, including man, is an unwilling host to one or more kinds of parasites. A number of these produce serious diseases. At the present time, more than 300 kinds of animal parasites have been described for man, and the list is constantly growing. By the term parasite is understood a living organism, which, for the purpose of obtaining food, takes its abode temporarily or permanently on or within other living organisms.

There are two great general divisions, vegetable, or phytoparasites, and animal, or zooparasites. While the phytoparasites offer a rich field for research and cause many serious diseases, they will not be considered in this paper. The zooparasites invade every organ, tissue and fluid of the human body. Their significance as an etiologic factor in disease is becoming more appreciated and understood.

There are ectoparasites, which live on external surfaces of the body or in cavities easily accessible from the exterior. This class will not be discussed in this paper. Endoparasites are those that live in the interior cavities, or fluids, or tissues of the body. Parasites are temporary, as in the case of fleas and bedbugs, and permanent, as in the case of many classes of helminths. Some parasites are confined to certain hosts, and are called specific parasites, as the beef tapeworm, which is specific for man alone. Other parasites thrive equally well in several hosts. These are called cosmopolitan, such as the *Dipylidium caninum*, a tapeworm found in the dog, the cat, and man. There are examples of free living animals which become parasitic when introduced into the body, as the vinegar eel. These are called facultative parasites.

CLASSIFICATION OF ANIMAL PARASITES

The foregoing gives a general survey, but is not scientific. With the morphologic characters used in classifying free living animals, as a basis of classification, animal parasites in man occur in four of the great primary phyla of animals.

First come the protozoa, or one-celled animals, four classes of which include parasites pathogenic to man, such as the endameba of dysentery, the treponema and the *Balantidium coli*. Second, come the arthropoda, including five classes, two containing parasites of man, and all containing many orders, including the cereal mites, mountain ticks, lice, etc.

Third, come the platyhelminths, or the flat worms, and fourth, the nematelminths, comprising the large group of round worms. Only certain classes of the last two phyla will be considered in this paper. The platyhelminth group is subdivided into three classes. The first class, *Turbellaria*, is rarely found in man. The second class, the trematodes, includes the flat, unsegmented worms, with one or more suckers, popularly known as flukes. It also includes a large number of parasites pathologic to man, but is beyond the scope of this paper. The third class, the cestodes, includes the girdle form flat segmented worms, or tapeworms. Up to the present, thirty varieties of tapeworm have been described. Of these, the following are the important parasites in man: The beef tapeworm, or *Taenia saginata;* the pork tapeworm, or *Taenia solium;* the fish tapeworm, or the *Dibothriocephalus latus*. The dog or cat tapeworm, the *Dipylidium caninum*, is probably the most frequent in infants. The larval stage is passed in the flea, which lives on the skin of the animal, and in turn is swallowed by its host. The *Hymenolepis nana* and the *Hymenolepis diminuta* are small cestodes from one fifth of an inch to one inch in length, whose life history is not yet complete. By some, they are thought to be identical with the cestode of the rat, and conveyed by that rodent to man.

There is a somatic group of cestodes which exist in a larval form, the most common being the echinococcus, causing hydatid cysts, etc.

The fourth phylum, the nematelminths, comprise the largest group of intestinal worms. This series is divided into three classes: First, *Acanthocephalia*, or the thorny headed worms, very rare in the human family; second, the *Gordiacea*, or hair-snakes, living in water, also rare in man.

The third class, the nematodes, contains the largest number of important parasites in man: First, the pigworm, or roundworm, the *Ascaris lumbricoides;* second, the pinworm, threadworm or seatworm, the *Oxyuris vermicularis*, the most frequent in infants; third, the hookworm, a group known by various names, such as the *Necator americanus*, *Ancylostoma duodenale*, the *Strongyloides intestinalis*, the *Strongyloides stercoralis*, and the *Uncinarias;* fourth, the *Trichuris trichiura*, or the whipworm, quite common and least harmful in children. Two other classes not included in this paper are the *Trichinella spiralis* and the *Filariae*.

CONCLUSIONS OF OTHER WRITERS

The foregoing arrangement is abstracted from a general classification arranged for me by Dr. F. B. Barker, professor of parasitology, University of Nebraska. In my examination of standard textbooks on parasitology, this classification appealed to me as more practical and easier to comprehend. Much valuable literature on this subject has appeared in recent years, some of a purely scientific nature, concerning the life history of helminths, and their geographic distribution.

Prof. Henry B. Ward,[1] of the University of Illinois, has called attention to the fact that the recent textbooks fail to convey the proper ideas concerning the tapeworm class, and that the tapeworms of the beef, pork and fish are rare in infancy, but the tapeworm of the dog and rat is more common. I quote from his article as follows:

> Of 100 cases of the dog tapeworm on record, 34 per cent. of cases in sucklings of 1 to 6 months; 42 per cent. in infants 7 months to 3 years; 10 per cent. 4 to 8 years, and only 13.5 per cent. above 8 years.

As a further evidence of the frequency of parasites in children, I call attention to an article by Oscar M. Schloss.[2] I abstract as follows:

> These investigations were conducted upon 310 children of from 2 to 12 years old, for the purpose of determining, first, the frequency with which children of this age harbor intestinal worms; second, the species of parasite harbored, and the relative frequency of occurrence; third, the number of cases

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[*] Read before the Section on Diseases of Children at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

1. Ward, H. B.: Arch. Pediat., 1916, **33**, 116-123.
2. Schloss, O. M.: Am. Jour. Med. Sc., 1910, **139**, 675-705.

in which intestinal worms are responsible for symptoms, and the nature of the symptoms produced; fourth, the occurrence and significance of eosinophilia in infections with intestinal worms.

He gives the following summary and conclusions on his work in New York: First, twelve of thirty children who suffered from unexplained nervous and gastro-intestinal symptoms were found to harbor intestinal worms. Second, consecutive examinations of 280 children showed that eighty, or 28.5 per cent., harbored intestinal worms. Five of the children harbored two species of parasites, giving a total of eighty-five infections. Third, thirty-one, or 11 per cent., harbored *Trichuris trichiura*; twenty-three, or 8.25 per cent., *Oxyuris vermicularis*; twenty, or 7 per cent., *Hymenolepis nana*, and five, or 1.75 per cent., *Taenia saginata*. Fourth, only one of thirty-three children infected with *Trichuris trichiura* suffered from the symptoms, while thirty-five out of the fifty-one infected with other parasites suffered from the symptoms. Fifth, eosinophils were not increased in *Trichuris trichiura* infections and were usually absent in infection with other parasites, when there were no symptoms of helminthiasis, but were usually present when such symptoms were present.

The writer's conclusions were as follows: First, intestinal parasites are not infrequent among children of the poorer classes of New York City. Second, intestinal parasites may be harbored without inconvenience to the host, and on the other hand symptoms may occur which are always deleterious and sometimes severe.

SYMPTOMATOLOGY

As is well known, all manner of symptoms are attributed to intestinal worms. In the south and other countries where the hookworm prevails, the symptoms are quite characteristic. We have seen but one case in Omaha, in a child who had spent the summer in Florida. The beef, pork and fish tapeworms have no characteristic symptoms. In my experience they are usually detected by observation of the segments of the stools. Among the recent articles on fish tapeworm, mention is made of the fact that the patients have a peculiar weakness out of proportion to the symptoms, and generally a high eosinophilia. It is believed by some authorities that this parasite elaborates a toxin. The larger roundworms may cause symptoms, the two chief ones being abdominal pain and mucus in the stool, also their migration. Twice in my personal experience patients have vomited roundworms. Twelve cases of obstruction of the bowels by masses of roundworms are reported. Threadworms are more frequent in infants, and while they may infest the upper bowel, they are usually present in the lower bowel. The most characteristic symptom is itching, with pruritus ani. The worms may often be discovered by careful inspection. Four times in the last year, I have been able to diagnose this type by inspection. The real proof of the presence of worms is the discovery of the ova in the stool. In his work on "Faeces in Children and Adults," Cammidge calls attention to errors that may occur in stool examination, and shows that even good observers may be mistaken. Muscular fibers, the parenchyma of fruit, the cuticle of seed, elastic tissue, banana fiber and mucus have all been mistaken for worms or ova. Quite frequently, children will pass worms during acute sickness. I have noted this in cases of cerebrospinal meningitis, in typhoid fever, in pneumonia and in enterocolitis. In one case of a child whom I was treating for mucus diarrhea, he passed at one time three roundworms and after that promptly recovered. Aside from the symptoms, intestinal worms may do damage by their migration, by the production of leukomains, as has been recently pointed out, by the decomposition of dead worms in the intestinal tract, and by the mechanical irritation of the lumen of the bowel, causing excessive secretion of mucus and interference with absorption. The hookworm living off the blood of the host causes a severe anemia, either by abstracting the host's blood or by developing toxins.

THE THERAPEUTIC TEST

I wish now to call attention to what I may term the therapeutic test. It is my impression that physicians as a class minimize the importance of intestinal helminths. As we all know, the lay public attribute all manner of symptoms to intestinal parasites. We so often hear the question, "Does this child have worms?" that we are in danger of overlooking them when they are actually present. For several years, I have made it a rule, in selected cases, to apply the therapeutic test, with the consent and cooperation of the mother. I have followed a routine procedure as follows: The child is given a cathartic in the evening, a light supper and no breakfast; and in the morning, the treatment is instituted. I have employed a combination of santonin and calomel, or the fluid extract of spigelia and senna. I am in the habit of combining this remedy with the syrup of blackberry. These remedies are followed by a brisk cathartic of either castor oil or solution of magnesium citrate. The mother is instructed to have a vessel containing water ready, and the stools are carefully examined. Any suspicious particles are put in a bottle and brought to me for inspection. Very frequently, I find strings of mucus, or banana fiber, which the mother feels very certain is a parasite. Also vegetable fibers are obtained, and particles of meat that require careful inspection. I have notes on the cases of fifty-seven children ranging in age from 4 to 12 years, in which this routine treatment was employed. As a result, three of the patients passed roundworms, one passed some segments of a taenia, and two passed threadworms, making a total of six, or a little more than 10 per cent. of the number. These were all run-about children having minor ailments and in none was there any positive evidence of worms.

In my experience, the threadworm is the most frequent in infants from 1 to 3 years old. All infants suffering from pruritus ani should be carefully inspected. These patients are very difficult to cure. In one of my cases, persistent treatment was continued for eight months. It is an error to depend entirely on local treatment. It is now known that these parasites may infest the bowels so high up as not to be reached by an enema. The treatment I employ is as follows: Once a month, the infant is given small doses of calomel and santonin, usually four doses one hour apart, and followed in an hour by a cathartic. In seven cases, large numbers of worms were expelled. Each night the mother applies a salve composed of mercurial ointment, 2 drams, and benzoinated lard, 2 drams. She is instructed carefully to separate the folds when applying this salve. Following a suggestion made by Holt in his textbook, I have used an infusion of garlic, for which two bulbs are sliced and boiled in a pint of water and strained. This treatment is kept up for a week and then, after an interval of three weeks, is resumed again. In four cases, two series of treatments have resulted in a complete eradication of the parasite. I have had one case of the dog tapeworm in a child aged 16 months. This child had as constant companion a pet dog. The youngest patient having a beef or pork tapeworm was 16 months old. This infant had been fed for a long time on raw scraped beef. I have had many failures in the treatment of the tapeworm because of the inability of the child to retain the remedy. In one case in which I had two such failures, at the third treatment I introduced the remedy through a catheter into the stomach. This treatment was successful in expelling the head.

It has been my experience for many years that when the head is not expelled, an interval of about three months elapses before segments appear in the stool. Treatments should not be repeated until segments do appear. I have employed either the ethereal extract of male fern or of pelletierin tannate.

Roundworms in children, which often cause no symptoms, are, no doubt, the most frequent variety of parasites. They may be conveyed to the child in uncooked fruit, in vegetables and in drinking water, and the ova may be carried by the common house fly. My treatment for this variety of worm is the combination of santonin and calomel as in the treatment of pinworms. Twice in my experience, a repetition of the treatment resulted in the expulsion of worms a second time from the same host. Hence, when roundworms are discovered, I advise a repetition of the treatment.

COMMENT

An inquiry among the druggists of Omaha elicited the fact that worm medicine commanded a large sale, some saying as large a sale as cough syrups. All anthelmintics are poisons. Bastedo states that three grains of santonin have proved fatal to a child. I have had three serious cases of poisoning in children from the use of worm medicines. Would it not be wise for physicians to warn parents of this danger? Only recently The Journal has called attention to one of the patent worm medicines containing santonin.

Intestinal parasites may be the cause of obscure symptoms in children not explained by careful clinical examination.

ABSTRACT OF DISCUSSION

Dr. William Weston, Columbia, S. C.: In 1902 we endeavored to eradicate uncinariasis in a community of about 8,000 population, and among that number we treated 1,600 cases of uncinariasis. Uncinariasis is an importation from the west coast of Africa. Our findings differed materially from the findings of English physicians who had worked with this disease in Egypt. We had a high birth rate among the population affected and a comparatively low death rate, but their efficiency was markedly affected. The ease with which the parasites may be eradicated is another point of great interest and importance. We tried all kinds of drugs, and we found oil of chenopodium was the best remedy. Another point, we seldom found a case that was not complicated with other intestinal parasites, and the use of oil of chenopodium was equally effective in the elimination of these other intestinal parasites as with the uncinaria.

Dr. Langley Porter, San Francisco: The older clinicians were very insistent on the fact that one could not get rid of the ordinary thread worm unless the child was protected from reinfection. The child scratches, the eggs get under the finger nails, and so reinfection constantly takes place. Most old textbooks recommend that the fingers be protected during the period of infection. A good protector is flexible collodion. Dr. McClanahan's suggestion about a stomach tube sounds like good advice. Years ago I was unsuccessful in securing the head in a case of tapeworm, and the father took the child to a charlatan tapeworm specialist—a layman. This man used ordinary male fern extract and divided the dose, administering it by capsule. The child was wrapped up and one of the capsules was tossed back behind the tongue into the pharynx. It seems to me this method may be less disturbing than the stomach tube. Another point about tapeworm, and that is the passage of the worm. The loss of the head comes from mechanical fracture, and if the child is placed on a vessel filled with water, at body temperature, the weight of the worm is supported, and there is no contraction of the worm due to change of temperature, and so, if these precautions be taken, the head is more frequently obtained than otherwise.

Dr. C. F. Wahrer, Fort Madison, Iowa: When I was a young boy on the farm our drinking water was contaminated with many things that should never get into a baby's stomach, and old granny was right possibly half the time when the child looked pale around the mouth and crunched its teeth and was nervous, in saying that the child had worms, and she thought there was nothing so good as to give two or three teaspoonfuls of turpentine. Dr. McClanahan's paper is very timely, especially when he warns parents not to dope children with all kinds of worm medicine, especially turpentine. This is sometimes dangerous. Not long ago I was called to see a child 4 years old. The mother had given four teaspoonfuls of turpentine for worms. The child was suffering with a severe case of strangury, and was dead in twenty-four hours. Not long ago a woman came to me with a child about 7 months of age, and showed me a stool just full of what looked like worms. I made a slide and found it was banana threads. She had already given turpentine three times and was also giving some vermifuge in heroic doses. She had given the baby three or four bananas in one day. It is wonderful how children can survive.

I would suggest that in these days of better water supply we make our diagnosis of worms in children tentative until it can be verified before using worm therapeusis.

Dr. Albert H. Byfield, Iowa City, Iowa: About a year ago a child of 2 years came to our clinic with intestinal parasites and a violent pyelocystitis. All of the classical remedies were used without avail. The patient presented a history of harboring not only the fine pinworm, but also the ascaris. Feeling that intestinal irritation was possibly keeping the pyelitis alive, I proceeded vigorously in an endeavor to rid the child of worms. After about eight weeks the pus diminished in quantity, the urine became quite clean and, although I kept in touch with that patient for over a year, there has not been the slightest return of the trouble.

Dr. Harry M. McClanahan, Omaha: There was one point I left out in reading, that is, that we so frequently discover intestinal parasites during acute infections. As to hookworm, of course, I merely mentioned it, as we do not have hookworm in our part of the country. I appreciate what was said about oil of chenopodium. As to the question of reinfection by scratching, that point is well taken. A word of warning as to the use of mercuric salve: While it is valuable in the treatment of this condition, there is the danger of ptyalism, and we should be on the lookout for it.

Old Time Specialists.—It appears from the writings of Herodotus that the physicians of Egypt were considered the most learned in the world, and that they practiced specialties, being divided into oculists, dentists, surgeons, accoucheurs (mostly women, but also men), etc. From the researches of Ebers we learn that the physicians wrote prescriptions which were compounded by a special class of medical men, who were practically apothecaries or dispensing pharmacists, and Rawlinson says that all physicians were separate, as a class, from the priests.—Wall, *The Prescription.*

THE ETIOLOGY AND TREATMENT OF ENURESIS *

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About 200 cases of bedwetting were studied for a period of more than seven months. Most of the patients of less than 4 years of age and a few older ones were not used because they were not sufficiently developed mentally to be willing to undergo privations as an end to their cure. Children more than 12 years old were not seen. The treatment was not outlined to patients not living with their parents, who would not make the necessary sacrifices, nor to patients brought in by neighbors. Children with cord lesions or other organic nervous diseases, diabetics, and those with marked mental disorders were considered as outside the scope of this study.

Boys comprised 62 per cent. of the cases. Blond children predominated. There was a history of enuresis in the immediate family in 56 per cent., including grandparents, aunts and uncles.

In 59 per cent. of the cases, the wetting took place only at night, and 38 per cent. wet both day and night. Less than 3 per cent. were day wetters exclusively. Incontinence of feces was encountered twice. In 68 per cent. the wetting occurred every night. The remainder wet less frequently. Seventy-nine per cent. had always wet the bed from babyhood; 20 per cent. began later in life after a normal period. Of the latter, four started with scarlet fever, one with chorea, and one after a fall from a window.

CONDITIONS ACCOMPANYING ENURESIS

The etiology, as usually considered, varies from malnutrition to a concentrated urine and even adenoids. As to adenoids, 36 per cent. of my patients had had them removed without apparent relief. In two cases the wetting was definitely worse after the operation. Fifty-one per cent. of the boys had previously been circumcised, and were, nevertheless, bed-wetters. Only three boys and one girl had adhesions of the prepuce. The adhesions were not broken up, and the cases in question numbered among the easily relieved in spite of the adhesions. Acidity, alkalinity, and high or low specific gravity of the urine were all held as of little consequence, and were never allowed to influence the treatment. Pus in the urine was always considered an evidence of inflammation, often very mild, and was cleared up before the enuresis treatment was instituted.

There was a definite history of pinworms in 20 per cent. of the cases. Besides these, there was a definite history of pinworms in either a parent or brother or sister in 32 per cent. I believe a much higher percentage among the enuresis patients would be found to have worms, had they all been given an appropriate treatment to bring the worms to light. Whether the incidence of pinworms in cases of enuresis is of greater proportion than in the ordinary run of cases, I am not prepared to say, but I am of the opinion that the proportion is greater, and that the pinworms may often be of at least secondary importance in the etiology of enuresis. The worms were prevented from accumulating by the giving of calomel and santonin.

There were many accompanying conditions present, among the more frequent being pinworms in thirty-four cases, pyelitis in eleven, tuberculosis in five, chorea in four, orthostatic albuminuria in four, adherent prepuce in four, and thirteen other conditions, such as one would expect to meet in any clinic. Only two patients were feebleminded, and four had some external genital abnormality. Most of the patients in the series were underweight, only one being definitely overweight.

About half the patients in this series had been previously treated by various other methods, many having been tried along two, three and even four lines. Twenty-six had been circumcised without any benefit, two becoming a trifle worse. Forty-nine had had their tonsils or adenoids or both removed to improve their condition. Twenty-four had had a more or less thorough "atropin treatment." Sixteen had received some form of alkali for an acid urine.

ETIOLOGY

Enuresis is probably never a disease entity, but simply a symptom or evidence of an underlying cause, namely a neuromuscular fatigue. This fatigue is not localized to the genito-urinary nerves and muscles, but is general. It is not an acute fatigue or exhaustion, but a chronic one. Enuresis patients are alike in many manifestations. They are all exceedingly active and nervous. When night comes, they are dead tired and sleep so soundly that it is almost impossible to wake them. Some slept so profoundly that it was impossible at 10 p. m. to awake them sufficiently to urinate, and when they were put back to bed they wet within five minutes. The children were never thoroughly rested because their period of sleep was never long enough to overcome the fatigue and strain of the long, active day. I believe it is due to such a neuromuscular fatigue that some children stutter and others have habit spasms. In bedwetting, control is lost over a certain group of muscles, but the general fatigue and loss of tone is behind it all.

Mental strain is often also a factor. Many of my patients attended parochial school that required almost seven consecutive hours of work. Then they were required to spend two or three hours doing home lessons at night. Such mental strain creates fatigue. If there is enuresis in such a child, it usually cannot be controlled until school is abandoned for a while and the general body tone revived.

Diet is an equally important factor in producing the general fatigue. The diet in over 95 per cent. of my cases was very poor. The patients were getting plenty of food, but not of the right kind or at the right time. More than half were getting baked beans for two meals in the week. Candy, cake, ice cream, syrup, molasses, cocoa, coffee, tea, apples, bananas, frankforts and pickled herring were daily offenders. Indigestion was uncommon, but such articles of diet and the food eaten between meals kept the gastro-intestinal system under a constant strain, and added appreciably to the general body fatigue. Adenoids, adherent prepuce, highly acid urine and irritation from worms may also add their mite to the creation of a general fatigue. As heredity plays an important part, the fatigue may be easily explained as a congenital lack of general systemic tone.

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* From the Medical Outpatient Department of the Children's Hospital.

* Read before the Section on Diseases of Children at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

Not only is there an underlying cause in enuresis, namely, general neuromuscular fatigue, but there is another and most important factor—habit. After the underlying cause has been removed, the habit of bedwetting may still remain. The treatment for the habit is very different from the treatment for the underlying cause, and is often more difficult to overcome. Many of the patients, when they present themselves for treatment, have only the habit remaining. Regularity in urination may in itself cure many of these. I imagine it is in this sort of case that suggestion, electricity, spinal douches, and surgical methods usually meet with good results in many hands.

May I compare the cause and habit in enuresis to the cause and habit in whooping cough and also in chorea? After the infection in whooping cough has long passed, the characteristic spasmodic cough often persists for months. It is simply an uncontrollable muscular habit, due to a cause no longer present. After the infection in chorea has passed, there persists again an incontrollable habit, dependent on, but entirely different from the original cause, namely, the infection.

The size of the bladder must also be considered. When enuresis has continued from babyhood, the bladder, continually emptying itself, is probably never distended to more than a capacity of from one to three ounces. This physical condition must be treated by gradually lengthening the periods between urinations.

TREATMENT

The treatment for enuresis in this series was planned absolutely along dietary and hygienic lines, with emphasis laid especially on more sleep and rest hours. No drugs, operations or mechanical means were employed. Printed directions were supplied to each mother and every minute detail explained.

All food was forbidden between meals, even milk and bread and butter. The diet list included milk, butter, eggs, meat, fish, breadstuffs, cooked cereals, macaroni, vegetables, orange, stewed fruits and simple, unsweetened desserts. It excluded soups, coffee, tea, cocoa, sweet and salty and highly seasoned food, ice cream, candy, pastry, cake, jellies, jams, etc., condiments, bananas and raw apples. Meat, eggs and vegetables were forbidden for supper, simply to make it easy for the digestive system at night.

The child was required to be in bed by 7 p. m. If it was a very nervous child, school was prohibited temporarily, and a nap required at noon. No play was allowed after 4 p. m. The child was to be entertained by books or toys in a chair. Moving picture shows, music lessons and evening home lessons were prohibited.

The habit element was treated in the usual way. No fluids were allowed after 4 p. m. There were regular hours for urination at night, namely, 7 p. m. on going to bed, 10 p. m., and not again until 6 a. m. Many children could not go eight hours because their bladders could not distend to hold more than two or three ounces. These were made to urinate also at 2 a. m. After a few weeks, the 2 a. m. urination was omitted. Punctuality was considered of prime importance; 7 p. m. meant 7 p. m., not 7:05 p. m. A regular habit for the time of urination means a great deal.

The day wetters were made to urinate at regular, stated times, anywhere from every three hours during the day down to every twenty minutes. The interval was gradually lengthened until a satisfactory regimen was reached.

It takes courage on the mother's part to carry out every detail of the treatment, because, unless the child is anxious to overcome his condition, she will have to watch him every minute in order that he does not eat between meals or take forbidden food, and to see that after 4 p. m. he is quiet and drinks nothing. For this reason, the older the child, the more successful the treatment. At the first visit, much time was spent in explaining the details to the mother, and the reasons for them. At each subsequent visit the details were investigated by cross-examination, and the faults corrected. Rewards were offered, not for not wetting the bed, because the children do not know when they do that, but for following directions and refraining from the temptation of food and drink.

Nineteen per cent. of 131 cases did not wet the bed on any occasion after their first visit for instruction. Another 23 per cent. did not wet once after the first few weeks or months, not wetting for at least one month previous to May 1. An additional 31 per cent. were relieved to the extent that they never wet more than once a week. Thirteen and one half per cent. were partially relieved. Sixteen patients, or 12 per cent., were not relieved at all. When a combination of day and night wetting existed, the day wetting usually stopped first. This was because the child could purposely wait until the appointed time for urination. Both cases of incontinence of feces cleared up in less than a month.

After the child has been successfully wakened at 10 p. m. and 6 a. m. without wetting the bed for a few weeks, he usually wakes himself at those hours, but he should not be trusted to awake himself for fear of his oversleeping and thus breaking the "dry habit." This makes it easier to wet the next time. It may take many months of treatment to tone the body to such a degree that the enuresis habit will never recur under any conditions. After an apparent cure, an intercurrent cold or an upsetting of digestion will cause the bedwetting to begin again. This is probably due to a return of the general fatigue resulting from the infection or other disturbance.

In the treatment of enuresis, many of the other coexisting disorders were markedly improved. A habit spasm in one case and night terrors in two cases soon disappeared. Stuttering in another was greatly relieved. Attacks of petit mal were reduced 75 per cent. in one boy. The usual nervousness and irritability decreased so much that almost every parent remarked it without a hint. Almost every child gained weight. There was very often an initial loss of weight due to the fact that on the simple diet many of the children would not eat the plain food.

Many writers have described subacute inflammations of the urinary tract as either causes or accompanying conditions in many enuresis cases. It is a matter of common knowledge that mild cystitis and pyelitis are usually secondary conditions, flaring up when the patient is run down or diseased. It may be that the general body fatigue is responsible for the continuance of both the inflammation and the enuresis. On the same theory, atropin, strychnin and thyroid may act as a nerve or muscle tonic. It is usually conceded that the drugs have little effect unless used in conjunction with some hygienic treatment.

As this work was done on outpatients by themselves in their own homes, a perfect result could not reasonably be expected. The nature of the directions are such that the mother may repeat the whole treatment, after a discouragement, without consulting the physician. The purpose of this paper is to show the effect of a simple, regular diet and plenty of rest and little excitement on the underlying cause of enuresis, which is general neuromuscular fatigue. The wetting habit is secondary, and must be treated by limiting fluids and establishing regular hours for micturition.

272 Newbury Street.

ABSTRACT OF DISCUSSION

Dr. Harry Lowenburg, Philadelphia: I have never felt that I cured a case of enuresis. I have had them get well, but I have always thought I had little to do with it. I remember one family in which there were three children with this condition. The father paid me quite a fee for trying to cure this condition, and I have felt conscience stricken ever since. The children eventually got well, but I do not believe I had anything to do with it. The doctor said he found underlying nervous fatigue. I believe that is true. The treatment for this is difficult, because we cannot remove the children from their own homes. To illustrate: A child was brought to me about four weeks ago. The mother said she could do nothing with the child; that it sat around all day and cried. The child cried in my office, and the mother said, "You stop crying; the doctor has a policeman in the house." I promptly told the mother she ought to commit suicide, that there was nothing I could do for the child unless the cause was removed. It is difficult to treat these cases from the fact that almost all of these parents are neurotic. The next case I get I am going to send to Boston to Dr. Grover.

Dr. H. M. McClanahan, Omaha: I have been disappointed often when children have been operated on for circumcision, without any result so far as the enuresis was concerned. I appreciate what Dr. Grover said in regard to diet. In children 8 to 12 years of age, the bladder is too small and will not hold a sufficient amount of urine to carry the child over the night. With the cooperation of the roentgenologist, we have some data along this line. We must get the confidence of the child and persuade it to hold the urine as long as possible during the day so as to develop the bladder. This can be done. Boys may be instructed to stop the act of urinating several times in order to develop certain muscles. Another point is to have the patient make certain to empty the bladder. Older children should be instructed to drink very little fluid, say, after 5 o'clock.

Dr. M. L. Turner, Des Moines, Iowa: My experience has been somewhat different from Dr. Grover's. I read some place that enuresis was due to a lack of development of the nerve center that controls the bladder, and I have worked on that theory. Take a child 8, 10 or 12 years of age, and make an impression on it in some way and it will stop bed-wetting within twenty-four hours. I have had a number of cases of that type. I think I can say that I have cured these patients—or at any rate the enuresis has stopped—in 75 per cent. of the cases. One of the first things I do is to stop the drinking of fluid after 4 o'clock in the day, and have the mother impress on the child that it is keeping the fluid from the child to keep it from bed-wetting. Where the mother will cooperate we usually get good results. I have used medicine in some cases at 4, 6 and 8 in the evening—usually tincture of nux vomica—and tell the mother to impress on the child that he is taking it to keep from wetting the bed. When the child has been impressed with this fact he ceases to wet the bed. One little girl came to the dispensary for treatment. The mother said the child would wet the bed within half an hour after going to bed, evidencing the fact that the center loses control before the bladder is full. I said to this girl, "You will soon be a young lady, and will want to have gentlemen call on you. Is your mother going to have to tell you that you cannot have callers because you wet the bed?" She went home and never wet the bed again. In another case the child was told she would have to have an operation if she did not stop wetting the bed. She went home and never wet the bed again.

Dr. Franklin N. Rogers, Manchester, N. H.: I am disappointed that there is not something more than the rule of rest that can be laid down for these little patients suffering with enuresis. It is discouraging not to be able to give these patients immediate relief. The point which impressed me most in Dr. Grover's paper is his emphasis on rest in the treatment of this condition. We all know rest is essential to children. The daylight saving plan which is now in operation has, without doubt, shortened the period of rest for children. It is hard to get a child to go to bed at the usual hour because it is so light. I agree also that there is a great deal of nervous irritability in these children—often due to family living conditions. A great deal can be done by the family for a child suffering with enuresis by enforcing the rules laid down by the doctor.

Dr. Joseph I. Grover, Boston: About a week before I left Boston I saw a boy, 11 years old, who wet the bed several times every night, and had done it ever since he was born. I explained everything to the boy in this case—he was educated and old enough to understand. Every day for the next eight days he was dry for the first time in his life. He passed his water at 10 o'clock at night and not again until 6 in the morning. In treating children by diet and rest, the child's general condition becomes improved. It seems that by treating enuresis children in general, with a good diet and rest, you can kill two birds with one stone.

THE EFFECTS OF HIGH EXPLOSIVES ON THE EAR *

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The large number of men incapacitated for military service on account of deafness due to the concussion from high explosive shells is engaging the attention of military authorities in all the armies in this war. The number of men who will return to civil life with seriously impaired hearing demands the attention of otologists. I have chosen this subject for consideration, not only because it is urgent, but also because I have had considerable opportunity to observe such results in warfare and in addition have studied in a very modified degree corresponding effects in the laboratory. It shall be my endeavor to describe my observations and the results of my investigations rather than to attempt to offer any explanation or form any hypothesis.

The otologic cases resulting from the bursting of a shell are divided into two groups:

1. Those in which a piece of the shell has struck the ear. The trauma may have been limited to the external canal or to the mastoid, or may have involved the middle and internal ear. Injuries to the external canal or mastoid cause total or partial deafness on that side and at the same time some loss of hearing at least temporarily in the other ear. In addition, we have the results of the suppuration and contractures of the external meatus so apt to follow. Injuries involving the middle and internal ear are usually immediately fatal from associated injury to the brain, and those who survive are totally deaf in that ear.

2. Those in which the damage has come from the explosion without any fragment of the shell striking the ear or its immediate neighborhood. In some there has been no objective signs of any trauma, in others some fragments may have caused a trauma in a part remote from the temporal bone. It is with this second division that this paper is concerned. It includes a large number of cases in which the diagnosis is fre-

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quently very difficult and the treatment as yet unsettled and obscure.

It has long been known that cases of temporary deafness occur during big gun fire. In these cases, tympanic ruptures are rare. The artillery men and navy gunners are able to take precautions such as standing back of the gun, plugging the ears with the fingers or cotton, and opening the mouth, when the guns are fired.

PREVALENCE OF WAR DEAFNESS

In previous wars, serious concussion deafness was extremely rare. In the present conflict which is preeminently the war of trenches and high explosives, cases of concussion deafness are numbered by the thousands. Many thousands of shells of high explosive force are in each engagement sent over to blow up the trenches and prepare the way for the attack. These shells vary in weight from a few pounds to about a ton and each consists of a thick iron case with a central cavity containing the charge which may be as much as 200 pounds of high explosives. These shells do not contain bullets. The injury comes from the explosive force, from the fragments of the shells and from debris from adjoining structures which they have shattered. The concussion effects are no longer confined to the artillery men who fire the big guns; far greater and more numerous are the disastrous effects produced by the burst on all classes of combatants.

The effect of the high explosive is a great compression followed by a great decompression; it is probable that the damage done to the ear results from the compression. I have had men under my care who have been blown considerable distances; thus, one man was blown out of the trench and then became unconscious. Another was blown 6 yards, became dazed and finally lost consciousness for three days.

I know of no available figures that can help us to form even an approximate estimate of the numbers injured in hearing either temporarily or permanently by shell explosions. Whatever figures I give in this paper are to be understood as of only relative value. When in France, the fronts I was stationed at were relatively quiet and cases arising from exposure to heavy bombardment were rare, so my figures only show what may be expected in times of quietness. The base hospital, at which I was stationed and which was equipped for eye and ear cases, had sent to it either for examination and report or for admission and treatment many patients with deafness of long duration, but only such as had no need for general surgical or medical care. So obviously such figures would be misleading.

Dr. Sohier Bryant[1] of Boston has recently published a statement in regard to the number of men incapacitated from injuries and diseases of the ear in the French armies based not only on observations made by himself and his colleagues in the French army, but on figures given by the French war office.

> "In the zone des Armées at the Front, the total sick contains 16 per cent. of ear cases in the evacuation hospitals. From the evacuation hospitals 4½ per cent. of ear cases are evacuated to the rear. In the rear of the zone des Armées, in the zone des Etapes, ear cases form 6¼ per cent. of total sick. These figures rise during time of inactivity at the Front and fall during military activity. Seven per cent. of these cases are evacuated from the zone des Etapes to the Interior. In the Interior region, ear cases form 9 per cent. of total sick. I estimate that about 80 per cent. of the ear cases will show considerable impairment of function. This impairment will be sufficient to interfere permanently with the civil occupations of the patients. The above figures are for 1917, some of them approximate."

These figures obviously include all ear troubles, infective and traumatic, but even then they are sufficiently alarming. One recognizes that an ear damaged even slightly by the bursting of a shell is more liable to the invasion of pathogenic organisms and to suppurative processes. My experience leads me to believe that in the British forces the number permanently incapacitated from injuries and diseases of the ear is smaller than that of the French forces.

In the early days of the war the large number of cases of deafness after shell explosion, the intensity of deafness, and sometimes long persistence of this symptom, gave serious ground for fearing a serious lesion comparable to that of labyrinthine hemorrhage. This is disproved by the subsequent history of cases and by the available postmortem examinations. There have been published alarming percentages on the subject, based on conclusions from an insufficient number of cases. While total and seemingly incurable deafness is rare, yet according to Jobson[2] a large number who have been exposed to a heavy bombardment which caused severe or complete deafness for one or more days and who declare they now hear quite well will be found on examination to have some definite signs of deafness. In a series of examinations Jobson found a large majority, more than 80 per cent., were quite unaware of being deaf.

Lannois and Chavanne report on 1,000 patients whom they had seen at Lyons up to June, 1916. These they classify as follows:

1. War deafness in patients having auricular lesions in process of evolution with a nonhealthy auditory mechanism: (*a*) Chronic suppurative otitis media, 189 cases. (*b*) Sclerosis of the middle ear affecting or not the internal ear, 134 cases.
2. War deafness in patients with healthy auditory meatus: (*a*) Simple labyrinthine concussion, 262 cases. (*b*) Labyrinthine concussion with rupture of the tympanum, 82 cases. (*c*) Labyrinthine concussion with rupture of the tympanum, followed by acute suppurative otitis media, 301 cases.
3. War deafness or deafmutism from traumatic neurosis, 32 cases.

In this report there is one group which requires the attention of otologists—(*b*) and (*c*) of Section 2. The fact that out of 383 cases of shell concussion with rupture of the membrane, only eighty-two escaped suppuration does not speak well for our treatment of early cases. This is no reflection on the distinguished Lyons otologists who probably saw many cases after suppuration had started. The number of cases of acute suppuration following rupture is in the armies of all the combatants in excess of what it ought to be and can be reduced by early satisfactory treatment.

In one stationary hospital near the front, to which victims of recent shell shock were sent, including men suffering from shell shock deafness, I saw 200 patients with little or no trauma exhibiting nerve symptoms ascribed to high explosives. Of these, 50 complained of deafness of varying degree. Of the 50, 17 showed demonstrable symptoms of injury to the internal ear traceable to the explosive. Among the other 33, either the deafness had been temporary and no objective signs of disturbance of equilibrium could now be seen, or the persisting defect of hearing was due to middle ear involvement, in some of old standing, or to blockage of the external canal from wax or some other cause. Of the 17 cases, 7 had symptoms of nerve deafness without perforation; 6 had definite middle ear trouble previous to the concussion, and of the other 11, with no previous history of ear trouble, 6 had recent perforations; 12 complained of vertigo and had observable signs due to it; the other 5, when examined, had no symptoms of disturbances of equilibrium.

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[1] Bryant, W. S.: Prevalence of Ear Injuries and Diseases in the French Army, Jour. Laryngol., Rhinol. and Otol., 1917, **32**, 338.

[2] Jobson, T. B.: Lancet, London, 1917, **2**, 566.

A large proportion of the men suffering from shell concussion deafness get better very rapidly, in one ear usually more rapidly than the other. Those with simple rupture of the tympanum without suppuration are the first to recover; about 50 per cent. of these have serviceable hearing within a month. My experience is that even those showing slight improvement at the end of one month may still improve. But the longer the delay in improvement, the less likely they are to get better. The most obstinate are simple labyrinthine concussions, in which, according to Lannois and Chavanne, there are only 24 per cent. of cures in the first month.

SHELL SHOCK DEAFNESS DEFINED

The term shell shock deafness, so commonly applied to these cases, has a fascination for the lay mind. Its vagueness as a medical term serves to emphasize our ignorance of its pathology. Shell shock deafness means that the patient has been made deaf by the concussion of the shell associated, it may be, by little obvious injuries due to its bursting. In many the probability of internal injury to the nervous system must be considered. By the force of the explosion the soldier may have been blown violently against the parapet or walls of the dugout, or hurled for some distance through the air, or struck by débris from the destruction of neighboring buildings. One man described it as a soft irresistible force pushing him up against the parapet wall close to which he was standing when the shell burst in the trench. As a result of the explosion the men may be buried for a varying period, and, as Mott[3] pointed out, this may have an important bearing on the symptoms which follow. It must be noted that, though not observable to the casual examiner, a trauma to the ear is frequently present and observable to the otologist. In recent cases seen by me, minute ruptures were observed which under ordinary conditions would close in a week; and when no rupture was seen, the congested condition of the membrane and of the middle ear indicated that the blow had been sufficient to cause considerable disturbance. In many of the cases seen some time after the concussion, in which no trauma had been diagnosed at the first examination, the history of aural hemorrhage and of rotation vertigo made it more than likely that an injury to the peripheral aural mechanism was present at the time of the explosion. But if the term shock is to be condemned as too indefinite, it is just as important, perhaps more so, to avoid as far as possible the terms hysteria and neurasthenia. These elastic and indefinable terms are too often applied to such cases, probably less often now than in the early stages of the war, and have resulted not only in an unwarranted stigma but often in disastrous effects. The cases under review will be discussed in some measure to ascertain how far the psychogenic explanation may be accepted.

RELATION OF THE EAR TO PRESSURE

The ear is the peripheral sense organ which *a priori* we should have expected to suffer greatly from concussion effects. Like all peripheral organs, it is a mechanism adapted to transform one form of external energy into nerve impulses. There are two separate and distinct mechanisms in the internal ear, one concerned with the hearing, and one with equilibrium. Each of these mechanisms is adjusted and made sensitive to register minute pressures and transform them into nerve impulses. The nerve impulses are carried to the central nervous system, there to be interpreted and utilized. In hearing, air vibrations (varying, say, from thirty-two double vibrations per second up to several thousand double vibrations per second) in various combinations are transmitted normally through the external auditory meatus to the drum membrane, which is finely swung to catch them. The vibrations are then transmitted through the ossicles and the middle ear to the cochlea, where they are transformed into nerve impulses. Nerve impulses may also be set up in the cochlea by vibrations through bone, but these, so far as hearing is concerned, are of secondary importance. The nerve impulses are conveyed along the cochlear nerve and the acoustic path to the temporal lobe, where they enter in one definite bundle. Here they come in association with various parts of the cerebrum. The route from the periphery to the temporal lobe is not one undivided path. To put it roughly, there is not one telephone wire from the ear to the receiving and interpreting station in the cortex. The path is broken at various synapses or junctions or telephone exchanges. At these synapses connection is made with other nerve paths, and communication can be and is established with other physiologic systems. What the significance of this probable interchange and influence on other paths may be, we do not know.

The other pressure mechanism in the internal ear is a system of canals containing fluid, a manometer, so designed as to register and signal to the central nervous system movements of the head. This mechanism is adjusted to indicate very small varying pressures. Here, also, in the central path, we have numerous synapses influencing other cranial pathways, somewhat better though still very inadequately understood. The information so obtained from the vestibular peripheral mechanism is coordinated with information received from other sources (the eyes, the joints, etc.), and enables the muscular mechanism to adapt itself rapidly to varying alterations of our center of gravity to preserve the equilibrium, for instance, to maintain the erect posture during movements of the head. There are certain limits of pressure normal to these two mechanisms. Pressure beyond the normal produces disturbances which are pathologic. Disturbances of the canalicular system produce disturbances of equilibrium, for instance, vertigo and nystagmus.

PATHOLOGIC EFFECTS OF EXPLOSIVES

Our knowledge of the pathologic effects of explosives on the ear has come largely from the experimental work of Witmaack, Yoshii, and Hoesli, who investigated the results of pistol or revolver shots near to the ear of animals, chiefly guinea-pigs. Yoshii's[4] work is the most complete, the experiments being in two series: effects of firing a single shot, and effects of firing repeated shots daily over a definite period. Some of the animals were killed at once, others were kept alive for a varying number of days, up to sixty. His findings in the first series may be thus briefly summarized: There were very constantly rupture of the tympanic membrane and hemorrhage into the middle ear cavity. Pathologic changes were present in all the coils of the organ of Corti. The hair cells were swollen, had lost their characteristic shape and were loosened from their support. Deiters' cells had lost their normal appearance and appeared as a homogeneous mass. The cells of Hensen were flattened out. The pillars of Corti were bent and the tunnel filled with a homogeneous mass, probably of extravasated cell contents. Nuel's space could no longer be seen. The tectorial membrane was raised sharply up and in extreme cases its free end reached Reissner's membrane. In recent cases blood corpuscles were seen in the scala tympani and in the vestibule. Immediately after the firing, a change was observable in the ganglion cells of the cochlear nerve. The Nissl bodies had disappeared and the chromophile substance was no longer distinguishable. In the nerve fibers, changes were seen, especially in the myelin sheath. As a result of repeated pistol shots, the pillars had collapsed and all the cells had lost their characteristic shape. This was especially observable in the region at the junction of the basal coil to the second coil where a complete atrophy of Corti's organ could be seen.

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[3] Mott: Effects of High Explosives on the Central Nervous System, Lettsomian Lectures, Tr. Roy. Soc. Med., London, 1916, 39.

These changes were observed immediately after the explosion and had reached their maximum in two or three days. Then a restorative process slowly set in, especially in the basal coil. In animals killed after eight days, the pillars were straightening out and the mass in the tunnel was absorbed, though the cells were not clearly outlined. Later regeneration proceeded in all the cells, but even after sixty days, the hair cells and Deiters' cells were not fully reformed in the basal coil and could not be distinguished in the other coils. At this time the ganglion cells were again nearly normal.

This work ought to be repeated in other mammals. So far, my results in dogs and cats do not give so extreme a picture.

HYPOTHESES ADVANCED TO EXPLAIN SHELL CONCUSSION DEAFNESS

The pathology of nerve deafness from high explosives is still little known. Complete pathologic examinations have been few. The involvement of the middle ear seen in a large number of patients, with or without rupture of the tympanic membrane, will produce diminution of hearing but will not account for the total deafness to air and to bone conduction, as well as other symptoms, which follow the explosion. We have, therefore, to look for some explanation in the inner ear or its central connections.

The following hypotheses have been advanced: (1) pathologic changes in the organ of Corti and the ganglion cells in the internal ear; (2) hemorrhages into the inner ear; (3) interruption of the central auditory path from small hemorrhages, edema, etc., and (4) temporary interruption of the central auditory path from functional disturbance, not due to any organic lesion.

J. S. Fraser and John Fraser[5] of Edinburgh have recently published the results of pathologic examinations of four cases of concussion deafness. The only changes found were: (1) rupture of the drumhead in three cases, and hemorrhage into the middle ear spaces in all four, and (2) hemorrhage in the fundus of the internal meatus in three of the four cases at the point where the nerves enter the bony canals. The vestibular apparatus showed very little change. The examiners conclude, "It seems quite possible that in many cases of 'shell' or 'explosion' deafness we have to deal with a functional affection, as suggested by Milligan and Westmacott. On the other hand, rupture of the drumhead and hemorrhage into the middle ear spaces must cause a certain loss of hearing, while hemorrhage in the fundus of the internal meatus may give rise to deafness, tinnitus, giddiness, and other symptoms of an inner ear lesion." The functional hypothesis is supported by the report of a pathologic examination of an ear by Mr. Sydney Scott,[6] who found no change in the internal ear.

While in France, I was able to secure several petrous bones from patients who died shortly after injury from shells. In all there was complete deafness. Two have been sectioned and studied, one of which briefly I wish to describe.[7]

The right drum membrane had a small rupture in the posterior half, but there was little blood in the tympanic cavity. The petrous temporal was congested, as were also the meninges. Both petrous temporals were removed within six hours of death and the superior semicircular canals were opened. The bones were placed in formalin, which was changed repeatedly during the first ten days.

These sections showed the following conditions:

I. At the deeper part of the internal auditory meatus where the cochlear nerve enters the modiolus, there were dilated small veins with small hemorrhages due to rupture (by rhexis) and also hemorrhages through the interstices of the capillary walls (by diapedesis).

II. Edema was seen, also infiltration of small cells throughout the area of the cochlear ganglion. In some of the ganglion cells the nuclei were well stained, but as a rule the cell contents were very indistinct.

III. The scala vestibuli and the scala tympani had no hemorrhage.

IV. The ductus cochlearis showed the following important changes:

1. The membrana tectoria was thrust sharply up and was attached to Reissner's membrane by serous effusion.
2. There was a small cell exudate along Reissner's membrane, especially marked in the areas near to the attached membrana tectoria.
3. The stria vascularis was edematous and showed hemorrhagic infiltration.
4. The basilar membrane was edematous and showed small cell infiltration.

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[4] Yoshii: Experimentelle Untersuchemgen über die Schädigung des Gehörorgans durch Schalleinwirkung, Ztschr. f. Ohrenh., 1909, 58, 200-252.

[5] Fraser, J. S., and Fraser, John: Morbid Anatomy of War Injuries of the Ear, Jour. Laryngol., Rhinol. and Otol., 1917, 32, 340-369.

[6] Scott, Sydney: Proc. Roy. Soc. Med., Otological Section, London, March, 1916, p. 29.

[7] The pathologic results and the history of cases have been given fully in a lecture before the Harvey Society of New York and will be published in full in the volume of Harvey Lectures for 1917-1918.

5. In the organ of Corti there were numerous small cell infiltrations, and there was serous effusion which filled the tunnel and the Nuel spaces. The pillars of the tunnel were unaltered. The other cells were indistinct. In some of the hair cells the hairs could be distinguished.

V. The vestibular mechanism was very little affected, except that there was a slight dilatation of the veins and some serous effusion and edema. No rupture of the membranous labyrinth could be seen and there was no hemorrhage into the canals.

VI. The foot plate of the stapes was uninjured.

These microscopic findings corroborate those of J. S. Fraser and J. Fraser, though in addition there was present the upward thrust of the membrana tectoria so characteristic of the experimental work on guinea-pigs already referred to. The findings tend to substantiate the hypothesis that deafness from the effects of high explosives may result in distinct damage to the peripheral organ of hearing, with little damage to the middle ear or the drum membrane.

GENERAL SYMPTOMS OF NERVE DEAFNESS FROM SHELL CONCUSSION

We are here concerned chiefly with the results of one severe concussion, followed by total or diminished loss of hearing. In some of the cases, a previous concussion may have damaged the hearing, and the second made it worse, or resulted in total loss. Cases of gradual diminution of perception of sound from long exposure to gunfire do not come within this paper.

The otologist is accustomed to differentiate two types of deafness: (1) conduction or obstructive deafness when the lesion lies in the external or middle ear, and (2) nerve deafness when the lesion lies in the internal ear or its central connections.

There are tests which enable one fairly accurately to determine which type one is dealing with. With both obstructive and nerve deafness, it is often very difficult to assign a relative value. In shell concussion deafness we are, as a rule, dealing with a mixed type.

In testing cases of deafness following exposure to shell concussion it was noted that we were dealing with a type which, so far as I know, is not usually noted in civil practice. The chief characteristics are:

1. There is a diminution in the tone perception both for bone and air over the whole range of the forks.
2. When hearing is markedly diminished, the diminution for the forks is marked at both ends of the scale and is least marked at about C^2 (512 d. v.) and C^3 (1,024 d. v.).
3. When hearing is completely obliterated there may still remain a remnant to bone conduction in the region corresponding to the C^2 fork.
4. With restricted tone perception with the use of a greater intensity, it is sometimes possible to extend the area of sound perception.

In considering these findings, it is well to recall that physicists place the localization at which a minimum of energy will produce audible sounds at about 1,000 d. v. below rather than above this figure. Further, otologists[8] claim that from 480 d. v. to 768 d. v. "is the most important part of the sound scale for hearing and understanding speech." These facts throw light on our findings that in concussion cases perception may linger for the tones C^2 (512 d. v.) and C^3 (1,024 d. v.), while tones above and below fall below the threshold of audible sounds. It brings this area into parallel with the macula of the retina and its relation to vision. It makes of interest our findings that associated with concussion deafness there is concentric limitation of the field of vision. In addition, since in concussion deafness, increasing the intensity extends the area of sound perception, this would further strengthen the analogy; for in indirect vision the more the object is illuminated the further it can be seen at the periphery.[9] The elaboration of this subject must be left for a future paper.

NERVE SYMPTOMS ASSOCIATED WITH THE TOTAL LOSS OR DIMINUTION OF HEARING

The symptoms frequently associated with loss of hearing from high explosives are included by neurologists within that group of nerve diseases called traumatic neuroses. In some of our cases there is a recognizable physical trauma, in the head or elsewhere, received during a period of mental excitement. In addition to deafness, which was the chief complaint of the men who came to the otologic wards, there were other symptoms, varied and complex. There were present, for instance, exaggeration of tendon reflexes, tremors, vasomotor disturbances, sweatings, lethargy, sleeplessness and headaches. Vertigo, with disturbances of equilibrium, is very commonly present and very much complained of. There was frequent concentric narrowing of the field of vision. In many of our cases, fields of anesthesia were present. In two of my cases of total deafness, there was complete anesthesia and loss of thermal sense. In one with total loss in one ear and great diminution in the other, there was anesthesia on one half of the body and hyperesthesia on the other. The ear symptoms accord with those which Déjerine classifies under traumatic hysteroneurasthenia. Some patients, as in neurasthenia, had hyperacusis with subjective sounds; others, as in hysteria, had the auditory acuity diminished, sometimes on both sides, sometimes on one only.

While granting that the symptoms accompanying the deafness often, but not always, fall within Déjerine's classification of traumatic, hysteroneurasthenia, yet one would err if one were to insist that the nerve deafness is to be explained as due to a functional neurosis. The sudden onset of these labyrinthine symptoms and the slowly accumulating, though as yet very meager, pathologic findings make one chary of fully accepting the neurosis hypothesis in all these cases. A study of the ear cases that have come under my observation has convinced me that in a large number the trauma has caused an organic lesion and that the functional symptoms are secondary and subsequent to it. It is altogether possible that these functional symptoms will persist after all traces of the traumatic lesion have ceased to be capable of recognition.

CASES SEEN SOON AFTER INJURY

The cases of deafness as they present themselves soon after injury show a variety of types. All the patients have been more or less dazed. Some are admitted as stretcher patients in varying depths of stupor. In many, the stupor or unconsciousness has passed off previous to admission. All have a varying amount of vertigo, but nystagmus due to labyrinthine irritation I have never seen. Of twenty-two patients with nerve deafness examined soon after the shell explosion, eighteen had demonstrable lesions of the drum membrane. Four had no demonstrable lesions, and of these four, three had the history and indication of old trouble, and one had had no previous ear trouble and no demonstrable trauma.

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[8] Bezold and Siebenmann: Textbook of Otology, Chicago, 1917, p. 71.

[9] Luciani: Human Physiology, London, 1917, 4, 339.

Next to deafness, vertigo is the chief complaint. It is very difficult in many to estimate the amount of vertigo that is present. Vertigo is a subjective sensation and subjective sensations are difficult to describe; the average individual has a very indefinite idea of what medically we mean by dizziness and often includes in the term all variations in cerebral consciousness. But even moderately severe labyrinthine vertigo is accompanied by some objective signs such as nystagmus, pointing error, and signs of unstable equilibrium such as may be produced by shutting the eyes on standing or walking. In many the objective signs of vertigo quickly passed away. The greater number were comfortable so long as they remained quiet or moved slowly. It was experienced if the head were placed quickly in an unusual position and was especially apt to occur in bending. There did not appear to be any relation between the return of hearing and the disappearance of the vertigo. Of eighteen men carefully examined for signs of vertigo, twelve gave a distinct history and showed signs of labyrinthine vertigo. Six had no objective signs of vertigo.

CASES SEEN SOME TIME AFTER INJURY

In the cases of deficiency in hearing, following exposure to or injury from high explosives, the patients seen by me at the base hospital date the onset of their deafness back anywhere from two months to eleven months. All have been under treatment since the injury, many in the care of competent otologists.

The patients may be divided into three groups:

1. Those with nerve deafness.
2. Those who have had nerve deafness of a varying degree, and who, with a varying amount of indefinite nerve symptoms still have the fixed idea that they cannot hear. This group includes cases in which the patient hears without being conscious of doing so.
3. Malingerers. The majority in this group undoubtedly have had shell concussion which affected the hearing. At the time of examination, many still showed traces of traumatic neurosis. But they have now recovered, partially or entirely, from the defective hearing and are consciously exaggerating the defect still remaining or consciously asserting its persistence.

It is with the first group that I am here concerned. It may be said in passing that it is a difficult matter to separate the second from the third group. Experience, the general condition of the patient, his answers to the test questions, largely aid the examiner. To the second group belong the cases that yield to suggestion or recover hearing rapidly, often completely, after excitement or intense stimulation. To discuss the third group and show how the malingerers may be detected is outside the limits of this paper.

CASES OF NERVE DEAFNESS

The patients now to be considered have been exposed to and had their hearing damaged by the shell explosion. My endeavor will be to outline the treatment that I found beneficial in these cases. Patients with wounds in the temporal bone are for the present excluded. I deem this advisable because I wish to focus attention on the concussion. In some cases there were injuries from pieces of shell in a part of the body remote from the ear. But these are cases in which the trauma could not have damaged the internal ear. It is scarcely necessary to say that there are eliminated cases in which a trauma to the ear has come from the explosion, but in which the deafness, when examined, was evidently middle ear in type and in which no evidence of nerve deafness was present at that time.

It was not judged sufficient to take the patient's statement that he had been exposed to shell fire. It was necessary to have at the time of examination symptoms pointing to such exposure or official records supporting the statement. It must be remembered that it is not possible in a military hospital on the lines of communication to keep patients long. All we could do was to keep as long as possible those promising improvement and to suggest further treatment.

TREATMENT OF CASES OF CONCUSSION DEAFNESS

Although the number of the totally deaf is relatively not great, yet it may be said that, even at best, a large number of men are left at the end of two or three months with marked impairment of hearing, who show little or no tendency to improve. If left alone, they are not likely to improve. They are deprived in no small measure of the pleasures of social life and hampered in their industrial outlook. The question then arises, can anything be done for them to improve the remnant of hearing still present, or must we fall back on such advantages as lip reading offers?

In my work it was early observed that when the forks could not be heard by air or bone, it was possible, by summation of stimuli, to get the tone perceived through the mastoid. To make sure that this was so, the patient, if totally deaf, was required to hum the tone. It was further noted that, after repeated applications of the fork, the time required for the perception of the tone gradually decreased, and that at this period the patient was able to perceive the tone passed into the ears by tubes attached to resonating boxes and later directly into the ear.

With these observations as a basis, the following treatment was adopted, varying in accordance with the degree of deafness present:

1. Tuning forks were sounded and the vibrations conveyed to the ear, first, by bone conduction through the mastoid; secondly, through resonators attached to the ear by tubes; and thirdly, through the air. In our worst cases the time given to each of these processes varied with the amount of deafness. In the totally deaf it was sometimes found difficult to pass from bone to resonator. In these cases we found it convenient to use the resonating box of the piano.
2. The voice was used through resonators with a tube to the ear, with speaking tubes, and without any aid.

Each period of treatment was short, for fatigue was rapidly produced. If the treatment be too long, headaches, vertigo, and occasionally pain was complained of and profuse sweating was very frequently present. At each successive stage we had to use summation of stimuli; thus, not only must the fork on the resonator be kept up for some time, but with the voice we had to repeat the word, but even then there was a marked delay before the response came. In the later stages, this delay was still present. Then it appeared to be not so much that the patient did not hear, but that he hesitated to attach the word to the sound, for, if asked what he thought it was, he frequently answered correctly.

3. As soon as possible, carefully graduated physical exercises were given, in which the two essentials are short duration and no bending. The treatment, except the drill, was given twice a day in the worst cases; *it ought to be given twice in all.*

4. As early as possible, we ascertained if the semicircular canals were functioning, because when there was reaction to the caloric or the rotation tests in totally deaf patients we felt justified in continuing treatment for some time.

In some cases in which an ear was totally deaf with a normal vestibular mechanism, we failed to get any response; in those, however, who had not total deafness but some perception of sound, all the patients improved, some very considerably.

There is nothing new in the stimulation of the auditory nerve by sound. Marage[10] of Paris has long asserted that in suitable cases the use of sonorous vibrations produced by a siren which he has specially constructed is of benefit to improve the hearing. My method differs from his in that I prefer tuning forks and the voice conducted through resonating boxes to stimulate the auditory mechanism. He has applied the method in suitable cases of war deafness. He uses sonorous vibrations by means of a siren in which the air pressure reaches about 5 mm. of air, for as he says, "it must not be forgotten that even a very deaf man is often very sensitive to the weakest sounds."

His results are very interesting. "I consider," he says,[8] "a patient to be a success when at the end of the treatment *he hears sufficiently to rejoin his regiment.*" Sixty-eight per cent. were able to return to the front, of whom almost half were reported to him as very deaf, many as incurable. Of the nonsuccessful cases, 10 per cent. were totally deaf and remained so. The others have attained the power of hearing when one speaks close to the ear without raising the voice and can be used in certain auxiliary services.

A question of very great importance and one that will require very careful forethought is how far lip reading should be taught in such cases. My experience leads me to believe that in the cases under consideration lip reading should not be used until some method corresponding to the foregoing be tried.

SUMMARY

1. In deafness resulting from concussion due to high explosives, there is frequently a trauma demonstrable in the ear. The perception of sound is diminished over the whole normal range both for bone and air conduction. This diminution may be so great as totally to abolish perception of sound.

2. In the totally deaf who improve, bone conduction is perceived before air conduction. In these cases summation of stimuli plays an important part in the perception of sound. It is essential to differentiate vibrations from musical tones.

3. There is a *marked diminution* of the duration of hearing along the whole series of forks, both through bone and air.

4. The normal stimulus (musical tones or voice) is an adequate stimulus for the nerve and is the best stimulus. Electricity is contraindicated and liable to do harm, since it easily produces vertigo.

5. If the conducting mechanism is damaged or destroyed, it not only takes longer to get improvement, but complete recovery cannot be expected.

6. As the deafness diminishes, there may persist for a long time an inability to grasp intelligently what is said or to retain the memory of it. Thus a word may have to be repeated two or three times before the patient gets it; or, if he is asked to repeat two or three numbers given consecutively, he will repeat the last one. He knows that there were others but did not get them.

7. Pathologic examinations show that the auditory mechanism may be seriously damaged, while the vestibular shows little or no change. Therefore the vestibular mechanism may react to stimulation in cases in which the cochlea is seriously damaged. The large percentage of cases of early recovery speaks against any very serious damage to the organ of Corti in the majority of the cases. The absence of islands of deafness speaks against the destruction of a part of the cochlear organ.

8. Prognosis is good as a rule, especially if there is no history of marked aural vertigo, and a normal caloric reaction. The most noteworthy exception met with so far is damage to the seventh nerve. In these cases if hearing returns, it returns but slowly, and so far as I have observed, not perfectly even with a normal drum membrane, and the caloric reaction present.

9. While a psychogenic factor cannot be denied in concussion deafness, the frequency of labyrinthine symptoms immediately following the shell burst speaks against an exclusive view of the psychogenic explanation of nerve deafness.

10. The *progressive recovery of hearing* so constantly observed suggests that, in the light of our pathologic and experimental knowledge, we are dealing with injuries of the nature of contusions with edema, capillary hemorrhages, changes in the myelin sheaths and molecular changes in the nerve cells. That in the majority of concussion cases we have a marked destruction *of the organ of Corti or a definite* lesion of the auditory cortex appears to me doubtful, for in both of the regions we are dealing with a highly specialized structure in which regeneration would be unlikely.

ABSTRACT OF DISCUSSION

Dr. **Thomas Hubbard**, Toledo, Ohio: I found a device that was originally intended to protect gunners but has since been used more extensively to protect the ears of swimmers. It is a rubber thimble affair made in two sizes, and the voice can be heard through it. I know nothing as to its efficacy in preventing injury from severe concussion. I am positive, however, that in all cases great care *must* be taken in using any device to see that no plug of wax is pressed against the drum. In some cases one might shove in a hard plug of wax that would lie up against the drum and in that way, of course, temporarily impair the hearing.

Dr. **E. B. Dunlap**, Tulsa, Okla.: In June, 1917, I was at the Central London Hospital, and after one of the air raids eight people attended the ear clinic. They were employees of the general postoffice, in which two or three people were killed. These eight people had discharging ears, either one or both ears. When only one ear was *discharging, the ear that* did not discharge was protected by a plug of cerumen. There were two or three of these cases. In all cases the discharge was started by a concussion. These people had never had discharging ears before, except one—a man who had an old perforation—and this discharge started immediately, but no sooner than the others. When these men did *not* have a discharge in both ears, in every case they had a plug of cerumen to protect the drum membrane.

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10. Marage: Treatment of Deafness Resulting from War Wounds, Comp. rend. Acad. d. sc, 1915, **161**, 311-322.

Dr. H. W. Loeb, St. Louis: It seems to me that Dr. Wilson has gone even farther than Fraser in establishing some sort of organic basis for all of these conditions. I notice that in referring to the work of Bourgeoise and Sourdille, they claimed that when the shell explosion is in the open, unilateral deafness results, whereas if it is in an enclosed space, as in the trenches, it is likely to be bilateral. I would like to ask Dr. Wilson what he knows about this.

Dr. Samuel D. Higgins, Milwaukee: I think it might be interesting to report a case of unilateral deafness that occurred in Milwaukee a few years ago when the McNamara brothers blew up a large coal bin. This man was injured by the explosion; only one membrane was ruptured, however. He had no deafness and no difficulty in the ear which was apparently not affected. The ear in which the drum was ruptured suppurated, but only for about two weeks. His main difficulty was shock. He was frightfully nervous and the best aid was the first aid which was given to him six hours after the explosion occurred.

Dr. J. Gordon Wilson, Chicago: The ear protector I have shown will soon be on sale. All at present made have either been sent to the ordnance department or to France. Rubber or some plastic material such as wax molded into the external ear undoubtedly hinders concussion deafness, but these also block the entrance to sound waves and the soldier is thereby prevented from hearing orders. Regarding the benefit to be anticipated from ear protectors in the prevention of some forms of shock I can give no opinion, though I believe that very possibly they will be of use.

PREVENTION OF PNEUMONIA *

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NEW YORK

Last autumn little attention was given to pneumonia as a probable menace to our newly formed army. The reports of only moderate or slight incidence of pneumonia among the French and English armies gave a feeling of security concerning this disease. We were not without warnings, however, for even in times of peace pneumonia had been the most fatal of the acute infections among soldiers, as it is among the civilian population. The experience of the troops along the Mexican border during the preceding year had also given some indication of the danger of this disease. With the onset of colder weather, in October, the prevalence of pneumonia among the troops became serious. During November and December it became alarming, and in certain camps it reached epidemic proportions. Its prevalence among the soldiers has not yet entirely ceased, even with the coming of warm weather. Previous experience, however, indicates that it will probably become less during the summer, but unless preventive measures are found and properly instituted, we run the risk of a repetition next winter of the experience of this. It is very fitting, therefore, that we devote a short period to the discussion of the measures for prevention of this disease. Time will not permit a review of all the details of preventive measures, and I shall therefore limit my remarks to a consideration of the principles involved.

A year ago, a discussion of this subject would have embraced only a consideration of the prevention of acute lobar pneumonia due to pneumococcus. War causes rapid and unexpected changes. During the past few months, the experience in our army camps has entirely changed our point of view. Today, in considering this question, not only must we consider acute lobar pneumonia, but we must also include in our discussion broncho or lobular pneumonia having an entirely different etiology.

The fact that two distinct diseases existed in our camps was not at once generally recognized, and even in the camps where this knowledge has existed, it has not always been possible clearly to differentiate the cases of the different kinds. Consequently, the relative incidence of the two varieties of pneumonia during this first year of the war will never be known. Both kinds of pneumonia have prevailed in most of the camps, frequently simultaneously. Fortunately knowledge concerning the methods of differential diagnosis is now much more widespread than it was last winter, the laboratories are better equipped and better organized, and in the future the different kinds of acute pulmonary infection will undoubtedly be better differentiated, with a corresponding gain in our knowledge of epidemiology and mode of distribution.

Our consideration of the prevention of pneumonia will probably be rendered more clear by an independent consideration of the two diseases, for they must be considered such, at least from the standpoint of prevention.

ACUTE LOBAR PNEUMONIA DUE TO PNEUMOCOCCUS

The pneumococcus is a widely distributed organism in the mouths of healthy individuals, and since it survives for considerable lengths of time in dust, great opportunities exist for its widespread distribution, especially when persons live in close association.

A most important question, therefore, is, do persons acquire the disease because they receive the bacteria into their mouths, or on their respiratory mucous surfaces, or is the important etiologic factor something antedating this, something which causes a change in susceptibility of the host either local or general? Does infection then occur with those organisms in the mouth which have the greatest tendency to grow parasitically? It is obvious that the answers to these questions are of great importance as regards prevention, for in the one case, the chief attention must be given to measures for preventing the distribution of the infectious agent, and in the other, this is of little importance, and the chief attention must be given to the factors influencing resistance.

So long as all pneumococci were considered identical, we indeed had little justification for attempting to limit pneumonia by preventing the spread of the infectious agent itself, but were driven to the conclusion that the only factor of importance was the resistance of the individual. The demonstration, however, that pneumococci are not all identical, that the types responsible for two thirds of the cases, and these the more severe, are found only in the mouths of those sick of the disease, in the dust in their immediate environment, and in the mouths of a very limited number of healthy carriers who have been in close association with these patients, at once justifies attempts to prevent pneumonia by limiting the distribution of these more parasitic types of pneumococci. So far as pneumonia due to these types of organism is concerned, the conditions do not differ essentially from those in diseases like diphtheria or cerebrospinal fever, in which the acquiring of the infectious agent is considered of primal importance. Healthy carriers of

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* From the Hospital of the Rockefeller Institute.

* Read before the Section on Preventive Medicine and Public Health at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

the organism causing these diseases also are known to occur in considerable numbers. It is true that in pneumonia, due to these types of pneumococci, direct infection of one patient from another is not nearly so often obvious as it is in the case of diphtheria, for instance. All physicians who have had much experience with pneumonia, however, have seen examples of contact infection, and recently special studies have demonstrated the not infrequent association of cases due to pneumococci of the same type. This evidence seems sufficient to justify the attempts to prevent the spread of infection from patients sick with these types of pneumonia, provided this can be done without too great an expenditure of effort and expense.

There exists, moreover, further justification for the employment of this kind of preventive measures, even in all types of lobar pneumonia. It has long been known that the best way to render bacteria virulent for any species of animal is repeatedly to pass the bacterium through such animals, with each passage inoculating sufficient numbers of the bacteria to cause severe infection. We have no means of testing the virulence of a given race of pneumococci for man, since the virulence for different species does not run parallel; but supposing that the virulence of a given mouth strain is not very great for man, it is obvious that causing human infection may render it more pathogenic and invasive for the human species. Hence, if pneumococci from patients suffering from pneumonia are taken into the respiratory tract of healthy individuals, they are more likely to produce severe infections than are organisms that have been leading a more or less saprophytic existence. More stress than previously, therefore, should be laid on preventing the dissemination of pneumococci from patients sick of the disease.

ISOLATION AND VACCINATION

On the other hand, common experience indicates that the factor of lowered resistance cannot be neglected. It is true that here we are dealing with questions for the solution of which direct or experimental evidence is difficult or impossible to obtain. Acute lobar pneumonia prevails to the greatest extent in cold, stormy weather. In the army there have undoubtedly occurred much exposure and fatigue among the men who have suddenly changed their habits of life. In the prevention of pneumonia, therefore, measures to prevent undue exposure and lowering of resistance should be instituted, and in addition, isolation of pneumonia patients should be carried out to as great an extent as is practicable. In addition to these methods, however, there exists another possible way of preventing acute lobar pneumonia, which, if successful, would probably render all the other measures unnecessary. I refer to vaccination. Animal experimentation now gives a rational basis for this procedure, at least as far as Types I, II and III are concerned. The first important studies in this direction have been made by Lister in South Africa, where pneumonia among the natives working in the mines has for many years been a serious matter. He has now carried out preventive inoculation on a large number of men with striking and definite results. During the past winter, Cecil and Austin, working at the Rockefeller Institute and at Camp Upton, have conducted investigations as to the best method of preparing vaccine, the proper dosage to employ, etc., and have vaccinated more than 12,000 soldiers. Although sufficient time has not yet elapsed to make the results conclusive, it is of great significance that while a considerable number of cases of pneumonia have occurred among the uninoculated men in this camp, not a case of pneumonia due to pneumococci Types I, II or III has occurred among the inoculated men, the latter having received vaccine containing these types of pneumococci. Certainly the results obtained are sufficiently promising to justify the trial of this procedure on a much larger number of soldiers during the coming winter.

STREPTOCOCCUS PNEUMONIA

Only during the past winter has much attention been given to this form of disease as affecting large numbers of adults or occurring in epidemic proportions. So far as can be determined, the bronchopneumonia which has existed so widely in the camps has been due to one organism, a hemolytic streptococcus. Reports of the occurrence of pneumonia due to nonhemolytic streptococci have been sent in from various camps, but these demand verification. All the streptococci isolated have not been identical in their power to ferment the various sugars, and they have differed to a less degree in the appearance of the colonies formed by them. Whether these differences are important is not yet certain, but it seems that these properties are not entirely fixed and therefore are not, strictly speaking, diagnostic ones. It is not yet known whether all these organisms are immunologically identical. It is obvious that knowledge concerning the identity or nonidentity of the different strains is of very great importance from the standpoint of prevention. If the organisms are all the same, the problem is relatively simple. If, however, they are not identical, we must consider that the essential factor in inducing the epidemic was something apart from the organisms themselves. Moreover, if we are dealing with an infection due to a group of organisms, the study of carriers and the tracing of the spread of the disease will be rendered most difficult. The difficulties will be greater still, if it should be found that certain hemolytic streptococci identical with those causing the disease, but having no pathogenic properties for man, exist widely distributed outside the human body, and are also present as harmless saprophytes in the throats of very many healthy individuals.

It may be stated, however, that all the observers who have had much experience in the study of the flora of normal throats agree that actively hemolytic streptococci are found only with the greatest rarity in normal throats, except in the presence of epidemics of the so-called streptococcus sore throat, or streptococcus pneumonia. It is known that hemolytic streptococci do exist very frequently in milk, even in milk which is produced under the very best conditions, and also in milk products, such as cheese and butter. Intensive study, however, is showing that these streptococci, which have been described as of the bovine type, may be differentiated in practically all cases from those of the variety pathogenic for man, which has been called the human type. This differentiation is not entirely without difficulty, but with increasing knowledge is becoming more and more easy. In the epidemiologic studies that have been carried out in the army so far, great attention has not been paid to the differentiation of these two types, but this is probably not of extreme importance, since experience shows that streptococci of the bovine types are not frequently found in human throats, certainly not in large numbers. At present, therefore, we seem justified in considering persons who harbor large numbers of actively hemolytic streptococci in the throat as potential carriers of this disease. The persistence of these human streptococci outside the body in dust, in dried sputum, etc., has not yet been carefully investigated. It is known that they are tenacious of life, however, are resistant to drying and other deleterious influences. The possibility of infection through food should not be disregarded, especially since it is generally held that the epidemics of streptococcus sore throats are spread in this way. In view of the fact which I have previously stated, however, that hemolytic streptococci of the bovine type are very frequently found in milk, great care must be taken to avoid the confusion which may arise by the isolation of these streptococci from milk or milk products and in mistaking them as responsible for the epidemic.

That the infection starts in the respiratory tract and is a descending one seems most probable, since blood infection occurs apparently only late in the disease. Our present knowledge indicates that the infectious agent is spread by fairly direct transfer of the infectious agent from the patient sick of the disease or from healthy carriers, either by droplet infection or by the bacteria carried in particles of dust. In the presence of an epidemic, there can be no question that many healthy carriers exist. The number of these vary under different circumstances, apparently depending on the degree of crowding and close personal contact. The number of healthy carriers of any pathogenic organism is apparently related to the virulence or invasiveness of the given organism and to the prevalence or lack of immunity on the part of the individual coming in contact with the infection. In the case of diphtheria, the wide prevalence of immunity in man offers an explanation for the large number of healthy carriers. At present we have no means of testing immunity to streptococci. The pathology of the disease, however, suggests that the organisms are not highly invasive for man, that they take root and grow in man with difficulty and even when once established they do not intensively invade the human tissues. If such an apparent contradiction of terms is allowable, they are highly fatal to man but not extremely virulent for man.

EPIDEMICS OF MEASLES

There seems little doubt that the present epidemic among the soldiers started with infection of patients suffering from, or convalescent from, measles. This disease seems to render the respiratory mucous membrane especially susceptible to secondary infection, particularly with the streptococcus. Similiar epidemics of this form of infection are not unknown. Indeed, the almost invariable occurrence of pneumonia among children in crowded foundling and orphan asylums, and even in hospitals not conducted with the greatest care, has long been known by pediatricians and public health officials, and has led to the adoption of the general rule that children with measles should be treated in homes rather than in hospitals, even though the home conditions are unsanitary and unsatisfactory. Probably in our army hospitals, at first at least, infection occurred mainly within the hospital itself. Very good evidence of this fact we obtained, first, by studying in one of our army hospitals the prevalence of hemolytic streptococci in the throats of patients admitted to the measles wards, and then later, by observing the appearance of these organisms in the same throats after the patients had been in the wards some days. While on admission only about 11 per cent. of the throats showed the presence of these organisms, after the patients had been in the wards for from eight to fourteen days, between 50 and 60 per cent. of the patients harbored hemolytic streptococci in their throats. At this camp, however, both measles and the bronchopneumonia associated with it, had prevailed for several months before these studies were made. Moreover, in this camp evidence was obtained showing that this streptococcus pulmonary infection was occurring not only in the patients suffering from measles, but that patients with acute lobar pneumonia due to pneumococcus were being secondarily infected with streptococci, and thereby a disease of only moderate severity was changed into one of extreme gravity.

At this camp it did not appear that the disease was occurring primarily, or that healthy individuals were being attacked. Since my return to New York, however, cases have been seen among civilians in which the infection was apparently primary, entirely unassociated with any preceding infection. Dr. MacCallum, who was associated with me in the previous studies I have mentioned, has lately studied an epidemic in another camp and in a report not yet published states that in most of the cases seen there, no association with measles could be discovered. In a report which has just appeared by Fox and Hamburger from Camp Zachary Taylor, these writers are inclined to consider the two epidemics, that of measles and that of streptococcus bronchopneumonia, as occurring coincidently but more or less independently. Nevertheless, it seems probable that, without the extensive occurrence of measles, the streptococcus pulmonary infections would never have reached the widespread prevalence they have obtained. Even with the risk of indulging in unwarranted theorizing, I cannot help suggesting that the epidemic started as a streptococcus infection in the respiratory mucous membrane of measles patients. The streptococci, rapidly increasing in virulence, were then able to attack patients suffering from other respiratory diseases such as lobar pneumonia; and finally the streptococci have acquired such virulence that now even healthy persons may be infected. The conditions are not at all unlike those obtaining in epidemics of septic wound infection and puerperal fever as formerly seen in hospitals, in which at times there occurred a rapid increase in virulence of the infecting streptococci, with resulting sudden and widespread prevalence of this type of infection.

MEASURES TO PREVENT INFECTION

While our knowledge is far from sufficient to permit dogmatic statement, it seems probable that the efforts to prevent and to limit this disease should consist, first, in the institution of special precautionary measures to prevent the infection of those persons in whom a high degree of susceptibility exists, especially patients with measles, lobar pneumonia and other respiratory infections; and second, since the streptococci are present in greatest numbers and are most virulent in patients already suffering from the disease, in endeavoring to obtain an etiologic diagnosis in these patients at the earliest possible moment, and in isolating them as rigidly as possible. A third measure which would be of the greatest value, just as it has proved to be in the prevention of typhoid fever, and may be in the prevention of lobar pneumonia, is preventive inoculation. In the case of streptococcus, this is apparently not so simple as it might appear at first sight. Little is known concerning immunity to streptococci, and this little indicates that this immunity is much more difficult to induce artificially than is immunity to pneumococcus, for instance. It is not at all impossible, however, that with further investigation, proper methods for producing this immunity may be discovered. Finally, the detection and the isolation of healthy carriers, while theoretically of great importance, seem at present impossible and impracticable tasks. By avoiding crowding and by inculcating in the men by education a sense of propriety in caring for their nasal and oral secretions, just as they have been taught not to distribute feces and urine indiscriminately, much may be done to lessen the danger of the healthy carrier. Convalescents from the disease probably carry streptococci of high virulence and are therefore of great danger. Isolation of such persons until examination of the throat shows great freedom from these organisms should not be impossible. Protection of the soldier from influences which may lower his general resistance, such as exposure and undue fatigue, at least during the early period of training, is also undoubtedly of importance.

Emphasis should be laid on the matter of early diagnosis and especially the matter of proper isolation of cases of infectious disease, since these measures, as I have indicated, are essential for the prevention of the disease under discussion, as well as of all other communicable, acute, infectious diseases. For these measures to be carried out there are three essentials: first, knowledge by the surgeons of the early signs and symptoms in those diseases in which diagnosis is made by these features alone, notably the exanthemata; second, well-equipped laboratories in which etiologic diagnoses may be properly made (this applies especially to pneumonia and to diseases like diphtheria); third, properly organized infectious disease hospitals. It is not as well recognized as it should be that an infectious disease hospital requires a special organization, quite different from that of the general hospital. The great majority of medical patients treated in the camp hospitals are suffering from infectious and contagious diseases. These patients cannot be properly isolated in a general hospital. Therefore every camp hospital should consist of two divisions, one for infectious diseases and one for noninfectious diseases. Patients for admission to the former should be kept entirely separated from those to be admitted to the latter.

The personnel of the infectious disease hospital should be distinct from that of the general hospital. The infectious disease hospital should be supplied with separate receiving rooms, should have observation wards with individual rooms for patients, and should have a group of wards for each infectious disease. With a well and specially trained head and an intelligent staff, the spread of infections in such a hospital could be prevented. All pneumonia cases, those due to pneumococcus as well as those due to streptococcus, should be treated in such a hospital. So far as possible, patients suffering from pneumonia due to the different types of pneumococci should be treated in different wards. Patients suffering from streptococcus infections should be rigidly isolated. Measles and pneumonia patients having hemolytic streptococci in their throats should not be placed in the same wards or rooms with those not carrying such organisms.

All this may sound utopian and fanciful to some of you, who will therefore be surprised to hear that these measures are already being carried out, at least in a somewhat modified form, in more than one camp. In one camp where the measles cases carrying streptococci have been carefully isolated from the so-called "clean measles cases," complications among the latter have been practically eliminated.

CONCLUSION

I should like to emphasize the fact that acute lobar pneumonia is an endemic disease, while streptococcus bronchopneumonia occurs chiefly in epidemic form. The reason for this is that streptococci are extremely variable in their pathogenic properties. Dr. Theobald Smith has drawn attention to the fact that streptococcus infections in animals are not self-perpetuating. They occur as epidemics, mainly as secondary, not primary infections. This is also true in man. A suitable soil is necessary. Given this, streptococci rapidly gain in virulence. Every new case of infection adds not only to the extent but also to the intensity of the epidemic. In streptococcus pneumonia, the epidemic of measles provides the proper soil. Measles in the army probably cannot be prevented. It is possible, however, that in any one place, the number of cases occurring at one time may be limited. Finally, the time to stop streptococcus bronchopneumonia is at the beginning of the epidemic. Later, this becomes extremely difficult. By the introduction, early in the epidemic, of measures such as I have mentioned, much may undoubtedly be done to lessen the incidence of this serious disease.

CONTROL OF MENINGITIS *

SIMON FLEXNER, M.D.
NEW YORK

Fortunately the problem presented by meningitis among our armed forces during the past winter has been smaller than that relating to pneumonia. But the conditions were not without their own degree of seriousness. At this moment we are facing the assembling of another large body of troops, and possibly the assembling may be repeated many times before the war is brought to an end.

Hence we shall doubtless find ourselves in the situation of having perpetually to guard against the prevalence of epidemic meningitis on a larger or smaller scale. Fortunately, we are in a favorable position with reference to that disease, since we know its bacterial cause and its mode of infection, and possess adequate methods of detecting the meningococcus.

There may be differences of opinion as to just what part the ordinary healthy carrier of the meningococcus plays in initiating an outbreak of meningitis, but no one disputes the fact that without carriers of meningococcus, either healthy or sick, there could be no spread of disease.

From this, it seems obvious that we command as many of the factors controlling the disease as possible. The meningococcus is, of course, the essential and

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* Read before the Section on Preventive Medicine and Public Health at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

central factor; but without doubt, subsidiary factors play important parts. Among the latter would appear to be excessive fatigue and concurrent respiratory infections of slighter degree, such as colds. That the unusual conditions surrounding the military life exert an influence at the outset is indicated by the circumstance that it is the fresh recruit and not the seasoned soldier who especially suffers from epidemic meningitis.

The source of meningitis in the Army and Navy is, in the first instance, the civilian population. Because healthy carriers of the meningococcus exist there, they have been introduced among the troops. Once there, they are menacing, apparently, according to fluctuating circumstances.

If we disregard, for the sake of our argument, the secondary factors that bear on the induction of infection, and concentrate attention on the meningococcus itself, two essential facts appear: first, that numbers of meningococci thrown off with the nasopharyngeal secretion, and second, that the bacteriologic type or variety of the organism play a large part in determining the result. Thus the healthy carrier who harbors many meningococci in his nasopharynx is relatively a much greater potential menace than the one who harbors few; and some types or varieties of meningococci are more pathogenic than others.

There is universal agreement among bacteriologists that the meningococci compose a complex group rather than a single, fixed type of micro-organisms. Recent studies also indicate that this group contains two immunologic varieties (so-called types) of meningococci which are responsible for from 75 to 80 per cent. of all cases of epidemic meningitis. The remainder of the cases are produced by meningococci of less fixed qualities and of less parasitic properties.

Studies of the meningococci among the general civilian population and military personnel, under conditions in which cases of meningitis are not frequent, show that the healthy carriers tend to harbor not the highly parasitic, but rather the less pathogenic varieties of meningococci. Once cases become frequent, however, the number of healthy carriers of the parasitic kind rises.

We are permitted, therefore, to view, tentatively at least, the class of meningococci somewhat as we now view the pneumococci. We distinguish among the latter parasitic and saprophytic varieties or types. The miscellaneous pneumococci composing the so-called Type IV group, notwithstanding the fact that certain ones may occasionally cause pneumonia, are still regarded as saprophytes and as practically always present in the mouths of a high percentage of normal persons. Similarly it may well be that normal persons not very infrequently carry the more saprophytic forms of the meningococcus.

Should we therefore proceed in the case of meningococcus as we have in that of pneumococcus, we should regard as menacing only the carriers of the parasitic varieties. Now, since in all our operations to conserve the health of our troops we must take into account the military exigencies, a distinction between dangerous and less dangerous meningococci would materially affect our practice of segregating meningococcus carriers and withdrawing them from active military training.

This distinction in types may now be readily made on the basis of specific agglutination with monovalent immune serums derived from rabbits. The subject, as I have outlined it, is in its early stages. It is to be hoped that the experience of last winter in the Army and the Navy and the intrinsic importance of the matter will lead to a critical study of the meningococcus carrier problem from this point of view, in the hope and expectation that the control of epidemic meningitis may be made thereby simpler, more effective, and less disturbing to the training of our troops.

AN EXPERIMENTAL STUDY OF PAROTITIS *

MARTHA WOLLSTEIN, M.D.
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The subject of the etiology of parotitis has been investigated from a bacteriologic standpoint, and cocci have been isolated from the blood, saliva, and fluid aspirated from the swollen parotid gland.[1] Attempts to reproduce parotitis in animals by the inoculation of such cocci proved entirely unsuccessful, showing that these earlier studies had not solved the problem of the etiology of mumps. The cocci are probably contaminations. In 1908, Granata[2] first used saliva filtrate from parotitis patients for animal inoculation, suggesting that the virus of parotitis may be a filterable one. Since then investigators have tried to reproduce the disease in laboratory animals rather than to isolate a bacterium from human patients. Granata worked with rabbits; Gordon[3] inoculated monkeys intracerebrally. Nicolle and Conseil[4] injected material into the parotid glands of monkeys. The results of all these investigations were only suggestive as far as the reproduction of mumps in animals is concerned, and Gordon's attempts to transfer the disease from one monkey to another proved entirely unsuccessful.

Three years ago material was obtained in the following way from a number of children acutely ill with parotitis: The patients were allowed to rinse the mouth with sterile physiologic sodium chlorid solution, and the washings were filtered through a new Berkefeld candle N. The resulting filtrates were proved sterile by aerobic and anaerobic culture methods and were injected into the parotid glands and testes of healthy, half grown cats. During the past winter the prevalence of parotitis in Army camps near New York City provided the opportunity for repeating the work with material from adult (soldier) patients.[5]

Experimental

Cats were selected as the experimental animals because they are known to be subject to attacks of parotitis and it might reasonably be inferred, therefore, that they are not possessed of a natural immunity to the disease. Old cats proved unsuitable because the thick connective tissue on the side of the face over the parotids makes inoculation difficult, and such old

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* From the Laboratories of the Rockefeller Institute for Medical Research.

* Read before the Section on Preventive Medicine and Public Health at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

[1] Laveran and Catrin: Compt. rend. Soc. de biol., 1893, 5, 528. Busquet: Rev. de méd., 1896, **16**, 744. Tessier, P., and Esmein, C.: Compt. rend. Soc. de biol., 1906, **58**, Pt. 1, pp. 803, 853. Mecray and Walsh: Med. Rec., New York, 1896, **50**, 440.

[2] Granata, S.: Med. ital., 1908, **6**, 647-672.

[3] Gordon, M. H.: Report to the Local Government Board on Public Health and Medical Subjects, London, 1914, N. S., No. 96.

[4] Nicolle, C., and Conseil, E.: Compt. rend. Acad. d. sc., 1913, **157**, 340.

[5] I am indebted to Captain Meader for the privilege of obtaining material at Camp Mills; and to Captain Monaghan for many courtesies at the Army Hospital at Secaucus, N. J.

animals do not react well. Before anesthesia the temperature of the cats was recorded and the leukocytes counted and differentiated. The skin over the parotid and testis to be inoculated was denuded of hair and carefully cleansed. Injection with a new, sharp needle is not difficult. The parotid can be picked up between the point of the needle and the left index finger, and from 1 to 2 c.c. readily injected.

The animals recovered rapidly from the ether and showed no ill effects from the inoculations. The following day the temperature had usually risen 0.5 C., but the white blood cells had not increased in number. There was, as a rule, slight tenderness in the inoculated testicle, and often in the parotid as well. This was evidently of mechanical and not of inflammatory origin and always disappeared within another twenty-four hours, leaving the cats apparently well on the second day, although the temperature was from 0.5 to 0.8 C. above normal. After six or seven days tenderness returned in the testis, accompanied by swelling, and similar symptoms appeared in the parotid. An increase in the leukocytes became apparent two days after inoculation and reached the maximum in about seven to fourteen days, coinciding with the height of the fever. The swelling and pain in the parotid lasted from two to five days, but the testicular swelling rarely subsided in less than ten to fourteen days. In the third week all the symptoms began to disappear, the leukocytes reaching the normal first, the tenderness disappearing at the same time, and the fever persisting for another week. While tenderness on palpation of the parotids was less marked than that of the testes, and the swelling never reached the stage of marked facial asymmetry, the cats manifested some degree of discomfort in the inoculated parotid. The appetite was only slightly affected, and at no period of the experiments did the cats seem especially ill. The disease was not fatal in any instance. Animals killed late in the second or early in the third week showed swelling of the inoculated parotid as well as of the other salivary glands and the neighboring lymph nodes.

The salivary filtrates from patients ill from one to three days produced these marked symptoms in the inoculated cats (Fig. 1). On the sixth day of the disease the effect of the filtrate injection was much less marked, and inoculation of material obtained from a patient nine days or longer after onset of the mumps attack was apparently without result: that is, the cats showed a temperature range of only 0.5 C., the leukocytes were not even doubled in number, and the mononuclear cells were not increased, but the polymorphonuclears were. At necropsy the parotid and the adjacent salivary glands and lymph nodes showed neither gross nor microscopic changes. It would seem, therefore, that the infective period of the mouth secretions from parotitis is comparatively short, lasting about a week and corresponding to the period of swelling of the parotid gland. A fresh swelling appearing in the opposite parotid gland would naturally prolong the infectious period for a given patient.

TRANSMISSION FROM CAT TO CAT

Transmission from cat to cat was accomplished in two ways: by means of the saliva of the inoculated cats, and with emulsions made from the inoculated glands.

By anesthetizing the animals, large amounts of ropy saliva were obtained, and at the height of the symptoms, at the end of the second week after inoculation, the cats were found to harbor in their mouth sufficient virus to produce active symptoms in normal cats. Salivary secretions from normal cats were used as controls and gave only negative results, just as did normal saliva from healthy human beings.

Emulsions from the inoculated glands were made by grinding the organs in a small, tissue-grinding machine, through whose fine wire screen from 0.2 to 0.3 c.c. of finely divided material passed. The best time for the reinoculation was found to be from the fourteenth to the seventeenth day, when the testicular swelling, the leukocytosis and the fever were highest. During the first seven to ten days, transfers were less uniformly successful. Evidently the reaction requires about two weeks for its maximum development. Atrophy of the inoculated testicle occurred in several cats, after the acute symptoms had abated.

After the third or fourth transfers, the reaction developed more rapidly and the effects were more severe. But after the sixth or seventh transfers, the reaction perceptibly declined.

These experiments were controlled with extracts prepared from the parotid glands and testicles of normal cats. The inoculation of such normal extracts was followed by a slight rise in temperature lasting only two days, and a polymorphonuclear leukocytosis of the same duration. No enlargement nor tenderness developed in the inoculated glands and at necropsy no changes were demonstrable in them.

PATHOLOGY

1. *Gross Appearance.*—(*a*) Parotid Gland: The inoculated parotid was deeper pink and larger than the uninoculated gland. This difference was often striking. It was also more moist than the uninoculated side and showed on section a granular appearance due to swelling of the acini. The submaxillary and the sublingual glands, as well as the adjacent lymph nodes, were congested and distinctly enlarged. The molar gland, lying just beneath the skin at the angle of the mouth and extending along the lower lip, was uniformly congested and swollen on the inoculated side. During life the buccal mucosa over the gland was distinctly reddened. This symptom could be found in the cat's mouth in four or five days after inoculation. The opening of the duct leading from the injected parotid was always surrounded by a small zone of congestion.

(*b*) Lymph Nodes: The lymph nodes on both sides were decidedly swollen and moist, especially the two nodes close to the anterior border of the parotid. The smaller nodes along the posterior border were usually more swollen on the inoculated than on the uninoculated side.

(*c*) Testis: The inoculated testis was larger than the uninoculated, but unchanged in color. On section the cut surface was more gray, cloudy and moist. In a few instances the point of inoculation was visible as a small dark spot, but otherwise no focal changes were noted.

2. *Microscopic Appearance.*—(*a*) Parotid: The histologic changes present in the parotid were usually inconspicuous in the first transfer, and consisted only of congestion of the vessels and swelling of the epithelium of the acini, with edema of the interlobular connective tissue. These are the changes that have been described in the pathology of human mumps.

In the third and fourth transfers, the glands often showed infiltration of the interlobular connective tissue, with mononuclear and a few polymorphonuclear cells in addition to the edema. The infiltration was most intense about the secretory ducts, which were sometimes dilated (Fig. 2). The epithelium of the acini was swollen and cloudy in some instances. The areas of cellular infiltration were more pronounced in some parts of the gland than in others, were always multiple, and could be easily differentiated from the small lymph nodes normally present between the lobules.

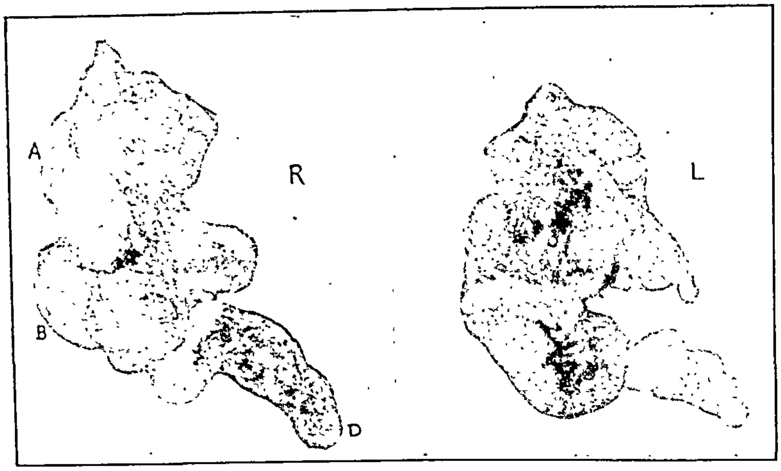

Fig. 1.—Parotid, submaxillary and sublingual glands and adjacent lymph nodes showing swelling of the inoculated (right) side; cat killed after seventeen days: *R*, right; *L*, left; *A*, parotid gland; *B*, submaxillary gland; *D*, lymph nodes.

(*b*) Testis: The histologic changes in the testis were more constant than those in the parotid, and more pronounced in the epithelium than in the supporting framework of the gland. The layer of cells next to the basement membrane of the tubules tended to be normal in appearance, but the rest of the cells were often the seat of a change resulting in a diminution in the number of spermatocytes and consequently of the mitotic nuclei normally found. The spermatids were still more altered, showing as the remains of their nuclei irregular and deeply staining granules, while the cell bodies stained poorly or had undergone extensive lysis. As would be expected, spermatozoa were diminished in number, and few were normal in appearance, their broken-up condition being easily discernible. Epithelial changes of some degree were present in some part of practically all the inoculated testicles. Interstitial cellular infiltration, on the other hand, occurred far less frequently in the testicle than in the parotid gland. Another striking change in the testis was noted in the interstitial cells. These were larger than normal, and, in several instances, actually increased in number, forming large masses between the tubules.

(*c*) Lymph Nodes: On microscopic examination, the swollen lymph nodes showed necrosis of the center of several lymph nodules, while the sinuses were distended and the lining cells swollen.

BLOOD CHANGES

1. *Leukocytes.*—The average number of leukocytes in the normal cat was found to be from 16,000 to 20,000, and a daily variation of 5,000 not an unusual event; consequently, only decided increases can be of significance. In the inoculated animals the white cells began to increase within the first forty-eight hours, while on the seventh and eighth days a sudden additional rise, often doubling the initial count, may occur. The increase is maintained, with daily fluctuations, for a period of from eight to ten days, the maximum being reached on about the fourteenth to the sixteenth day. The fall takes place gradually, the initial number being reached, as a rule, in about four weeks. During the first two weeks the leukocytosis is polymorphonuclear in character. At the end of the second or beginning of the third week, when the fever and glandular swellings are at the highest, a lymphocytosis is noted. The large mononuclear and eosinophil cells remained practically unchanged throughout.

The blood picture as described in the experiments is not dissimilar from the one observed in cases of parotitis in man with testicular complications. The increase in mononuclear cells found by Nicolle and Conseil[4] in one of their monkeys, which had been inoculated into the parotid but not into the testicle, is of some interest in this connection, as is the polymorphonuclear leukocytosis without the later appearance of a lymphocytosis noted in cats inoculated intratesticularly with material from normal cats, as controls; that is, the characteristic thing in the blood picture during parotitis is a mononuclear cell increase.

2. *Virus Content.*—The marked constitutional symptoms noted in many parotitis patients suggested an investigation of the blood at the height of an attack. Films were found to be negative for parasites and bacteria, and cultures made both aerobically and anaerobically remained sterile. Blood was taken from a vein at the elbow in seven patients ill from two to three days. All showed marked constitutional symptoms. The blood was defibrinated, proved to be sterile, and then inoculated into normal cats. Control animals were inoculated with

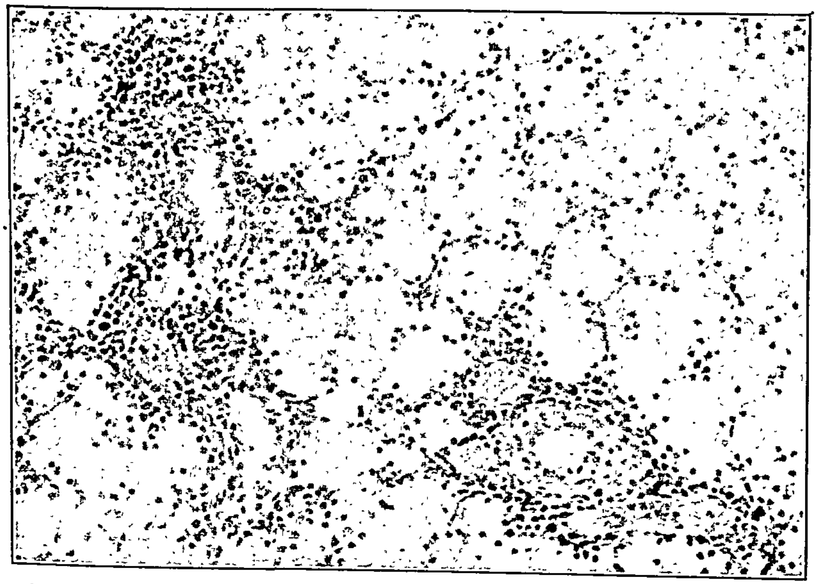

Fig. 2.—Parotid gland, showing cellular infiltration around the secretory ducts; cat killed after eighteen days.

blood from a normal adult. The results were interesting. While the temperature range was not high, it was least high in the controls. The blood count, on the other hand, showed a polymorphonuclear leukocytosis in both sets of animals; but while the mononuclear cells were diminished in the control cats, they were actually increased throughout in the animals receiving the blood from the patient ill of parotitis. The blood taken from a case with slight symptoms on the fifth day of illness gave no result on injection into a cat.

The conclusion drawn from these experiments is that the blood of parotitis patients, especially when suffering from severe constitutional symptoms, is infective for cats. This conclusion is in keeping with the clinical course and metastatic complications of certain cases. Figure 3 shows the swollen glands in a cat inoculated with the blood of a patient.

PROTECTION EXPERIMENTS

Results suggesting that protective substances may be developed by the cats after they have passed through a typical attack of experimental parotitis were obtained in two ways: 1. Animals were reinoculated from one to four months after the first inoculation and failed to develop the typical symptoms they had previously exhibited. 2. As was to be expected from the results of these reinoculation experiments, the serum from recovered cats had the power to reduce the development of the reaction caused by the injection of the virus of parotitis when left in contact with it at 37 C. for two hours. Animals inoculated with such a serum-virus mixture failed to develop the typical symptoms or lesions produced by the virus alone or by virus treated with normal cat serum.

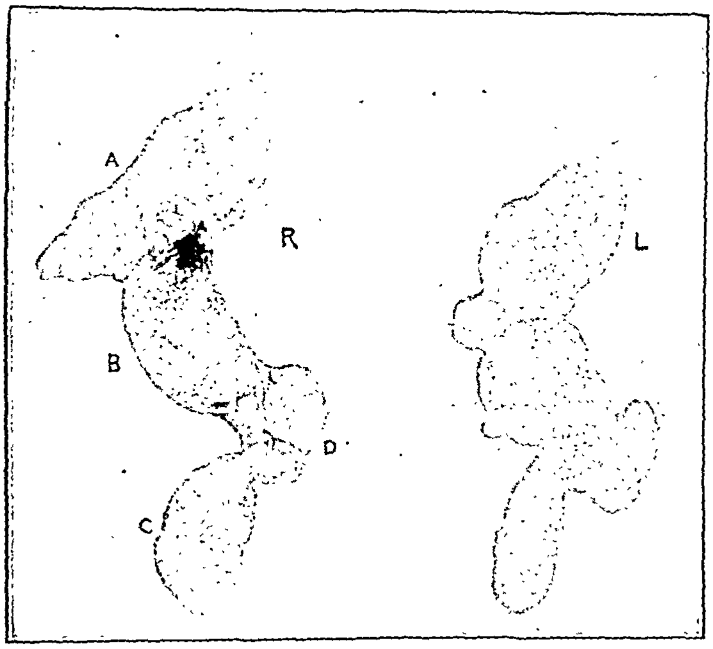

Fig. 3.—Parotid, submaxillary and sublingual glands and adjacent lymph nodes, showing swelling of the right side inoculated with blood from a patient ill three days; cat killed after seventeen days: *R*, right; *L*, left; *A*, parotid gland; *B*, submaxillary gland; *C*, sublingual gland; *D*, lymph nodes.

RECURRENT CASE

An interesting recurrent case occurred in a soldier. His first attack of mumps began in November, 1917, and he had three recurrences, the last one early in May, 1918. March 13 and again, May 1, his filtered saliva was injected into a cat, with positive results. Figure 4 illustrates the lesion caused by the filtrate of his saliva during the second recurrence. May 15, the mouth secretions were found to be negative and the facial swelling had disappeared. Jochmann[6] says that the swelling of the parotid may remain for months or even a year. The lesion in this soldier lasted for a period of five and a half months, and his saliva was infectious for that period.

SUMMARY

Cats injected into the parotid gland and testicle with a bacterial sterile filtrate of the salivary secretion of children and adults in the active stage of parotitis or mumps develop a pathologic condition resembling the condition present in mumps in human beings.

After an incubation stage of from five to eight days, definite changes have been noted in the temperature, blood leukocytes, and inoculated organs.

The rise of temperature and the leukocytosis precede the glandular swelling, but all the changes reach the maximum at about the same time, after which they decline, and normal conditions are reestablished in about four weeks.

The intraparotid and intratesticular injections of extracts of normal parotid gland and testicles may cause a mild rise of temperature and leukocytosis of brief duration, but swelling and tenderness are absent. The white cells increased are the polymorphonuclears and not the lymphocytes. The injection of filtrates of normal saliva causes only a mild and brief rise of temperature, but no leukocytosis nor swelling of the glands.

The saliva of man and of inoculated cats as well as the inoculated glands of the latter animals were found to contain the filterable infective agent.

The virus of parotitis is most readily detected in the saliva during the first three days of the disease, less readily on the sixth day, and not at all after the ninth day. This would have a practical bearing on the question of infectivity and length of isolation period for mumps patients.

The virus was also detected in the blood of patients showing marked constitutional symptoms.

The serum of recovered cats was found to contain an immune body which diminished or even neutralized the action of the virus of parotitis.

ABSTRACT OF DISCUSSION

Col. Frederick F. Russell, Washington, D. C.: It is apparent from these charts that the respiratory infections run similar curves and that in general city populations are immune and country populations are not immune; that the spread of measles, particularly, seems bound to take place when the men are brought together. If measles does not appear early, it will probably occur later, when the troops are crowded. We must remember that they are going to be crowded on the way across the Atlantic and on the other side; that there will be less air space per man over there than there is here in our own camps. As it seems almost inevitable that the men will have measles, it is better for them to have the disease under the best circumstances. The immunity that the city troops have to all the respiratory infections gives a hint of the remedy needed to make country troops equal to city troops. The diseases for which we have good vaccines have not appeared on these charts, and this again shows the importance of an active immunity against acute respiratory infections.

These are the causes of death—pneumonia, meningitis, traumatisms, tuberculosis, measles, scarlet fever, diphtheria, typhoid and paratyphoid. Smallpox is not even on the chart, so it is apparent that these diseases, for which we have pretty good protection, are not important. It is measles, meningitis

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6. Jochmann, G.: Lehrbuch der Infektionskrankheiten, Berlin, 1914.

and pneumonia of various kinds that cause the great mortality. We have now a new incentive to look for some way of producing artificial immunity against these diseases. So far as lobar pneumonia is concerned, it seems probable, from the work of Lister in South Africa and Cole in New York, that we have a vaccine which promises good protection against lobar pneumonia. Unfortunately, there is nothing very promising for these other infectious diseases, but it seems apparent that in order for us to have seasoned troops we have got to have immune troops, either immune as the result of naturally acquired disease or immune as the result of some sort of vaccination.

Dr. William C. Rucker, U. S. Public Health Service, Washington, D. C.: I have just returned from France, where, under the direction of the Chief Surgeon of the American Expeditionary Forces, an investigation was made relative to the sanitation of the troops in transport. I am not at liberty to give you the accurate data regarding the findings because to do so would be to disclose the number of troops that have moved and the ports by which they entered Europe. In one instance of a single convoy, on which there were not quite 14,000 troops, the time of the voyage was fourteen days. Of these troops thirteen men died before shore was reached. Of these thirteen deaths nine were due to pneumonia, three to acute tuberculosis and one to acute cardiac dilatation. There were 235 admissions to the sick bay during the fourteen-day voyage, of which 114 were discharged to the hospital when the troops were disembarked. The remainder were either returned to duty or were among the thirteen who died. There were forty-four cases of pneumonia; I forget the number of cases of mumps, but there were a considerably greater number of cases of mumps, and when we exclude the venereal diseases, there was only one case, a case of acute cardiac dilatation, which was not a sputum-borne disease. The greatest number of admissions to the sick bay was on the sixth day of the voyage. From that I think it is pretty safe to assume that the infections were acquired prior to embarkation. The sanitary condition of the vessels was excellent in every case The Navy has handled that end of the work remarkably well, and in no case was there infection which was traceable to the ship itself. We have control of the fecal-borne infections and we must focus our attention in the future more on the sputum-borne infections. The best way to accomplish this, so far as transportation is concerned, is to quarantine troops very carefully and to repeatedly examine them prior to embarkation, so that the sick man may not be shipped to Europe. The Surgeon-General's Office has handled this end of the problem remarkably well. There are some faults in the system at the present time, but they are not the faults of the medical department.

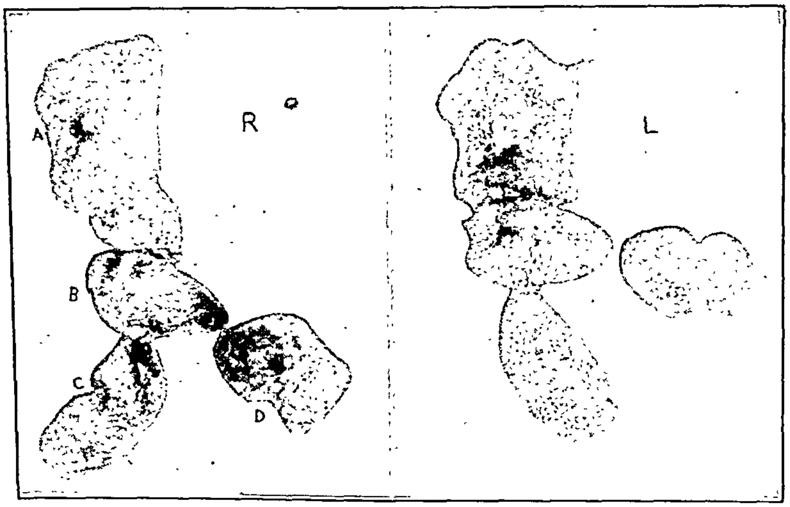

Fig. 4.—Parotid submaxillary and sublingual glands and adjacent lymph nodes, showing swelling of the right side inoculated with saliva filtrate from a recurrent case; cat killed after fifteen days: *R*, right; *L*, left; *A*, parotid gland; *B*, submaxillary gland; *C*, sublingual gland; *D*, lymph nodes.

Col. V. C. Vaughan, Washington, D. C.: I made a study of pneumonia and other communicable diseases in the camps during the six months from October 1 to March 31 and found that there are great differences in morbidity and mortality rates in the different camps. The healthiest camp was that of the Illinois National Guard, located at Houston, Texas. The death rate in this division was in round numbers one-half the death rate in the same age group in Chicago for the same time. The healthiest camps were located in the South and were occupied by northern troops. The next healthiest troops were northern soldiers in northern camps. The highest death rates were found with southern troops in southern camps. There were three camps with a death rate above 24 per thousand, and deaths were mostly due to pneumonia. These camps were Pike in Arkansas, Beauregard in Louisiana and Wheeler in Georgia, all occupied principally by southern troops. When we take a map and place the camps not where they are, but in the center of the area from which the troops came, we find that all the good camps are in one area, and that area is the northern part of the United States, east of the Mississippi River. It appears, therefore, that the prevalence of pneumonia depends on the susceptibility of the individual, and that southern soldiers are much more susceptible than their northern comrades. This was true in the Civil War, and apparently continues up to the present time.

The Surgeon-General himself having had large experience with pneumonia both on the Panama Canal zone and in South America, recognized the fact that the respiratory diseases would be those with which we would have to contend, and in order to limit the spread of these diseases, he insisted on proper floor space in barracks. It has developed that when we speak of crowding in our Army camps, we are prone to think only of sleeping quarters. Crowding in camps occurs more frequently and more dangerously in waking hours than it does in sleeping hours. When men gather around the stove in barracks or when they go to a place of amusement or instruction, there is the greatest and most dangerous crowding. Major Soper has figured out that at Oglethorpe, in a large amusement hall, when it is filled, if every man sits perfectly upright and does not move his head one way or the other, the greatest possible distance between one man's nose and that of another man on the same row would be 16 inches, and that on the rows in front and behind would be 26 inches. When one leans over and coughs, and when you think of 9,000 men sitting in such a hall and two thirds of them cough at once, you can see what it means.

So far as I know, in only one camp has there been any careful examination for malaria, and the percentage found in that camp was less than two. Of course, this does not prove that only 2 per cent. of the soldiers in this camp had malaria or had ever had this disease. At Bowie, in Texas, a thorough examination was made for hookworm, and about 12 per cent. of the soldiers were found to be infected. It seems from these figures that neither hookworm nor malaria has existed in the southern camps to the extent generally supposed.

Dr. H. Gideon Wells, Chicago: We have heard something about the situation as to cholera on the Macedonian front. It may be interesting to mention the Roumanian front on the opposite side of Belgium. At the time of the retreat of the Roumanians into Moldavia there was suddenly crowded there a double population, with few roofs to cover them and very little food. Consequently, the population was moving as rapidly as possible and as freely as possible to get food and shelter. Cholera immediately broke out and, under these conditions, at once spread widely, with no possible means of preventing it by quarantine. Professor Cantacuzene of the University of Bucharest had brought out their bacteriologic laboratory equipment on cars. They at once established as near universal vaccination as possible. There was absolutely no other way to interfere with the spread of cholera, yet there was practically not a case remaining in less than two months. Last summer, at certain of the camps, all the men passing through these stations were examined as to the existence of cholera carriers, and there were no cases to be found among these troops, showing how efficient cholera vaccination is by itself, even in the absence of proper quarantine and sanitation.

DR. PAUL ARMAND-DELILLE, France: Our French laboratories had the same experience. There were some cases in the civilian population, and in Corfu they used the same method, vaccination, and stopped the epidemic.

DR. SIMON FLEXNER, New York: I was asked to touch on the point of the extent to which examination should be made in the search for meningococcus carriers. In the first place, I should say that whole commands should not be swabbed. Even assuming the operation practical, it would not be justified. I approve the plan outlined in the leaflet of information of meningitis issued by the Surgeon-General of the Army, in which the Navy concurs. This plan is based on wide experience. Briefly, it consists in swabbing first the close associates of the case of meningitis, and later extending and widening the circle according to circumstances—that is, whether more cases arise or not. Two advantages are obtained by this procedure: disorganization of the military personnel is avoided, and the carrier work is done more thoroughly and with greater finality. To attempt to swab organizations larger than the laboratory force can handle well is either to invite inaccurate reports or to compel repetition of the work.

COL. FREDERICK F. RUSSELL, Washington: There was one point about the carrier work which has been done on meningitis which shows in the survey of all the camps, and that is that where the carrier work was done thoroughly at the beginning the disease never became widespread, nor has it persisted. In some of the camps, where for one reason or another it was impossible to get the carrier work started early until the cocci and the infection were widespread through the camp, we have not been able to get the rate down, and at the end of the year we find certain camps have had a much higher number of cases than other camps, and they are the camps which were late in getting to work on the carrier problem.

DR. RUFUS COLE, New York: It is remarkable that there has been little or no pneumonia among English and British troops. The factors on which this freedom from pneumonia depends is still somewhat obscure. Dr. Vaughan has brought out the extremely important fact that racial or geographic immunity does really exist entirely apart from other conditions, such as climatic or hygienic ones. However, there are two main factors to be considered in infections Individual resistance is one of these factors, but the virulence or invasiveness of the infectious agent is also of significance.

Monkey Bone Grafts.—Küttner recently reported in the *Münchener medizinische Wochenschrift*, 1917, No. 45, the present status of two children who had had the lacking fibula or radius replaced with the corresponding bone from a young macacus monkey. The children were 9 months and nearly 2 years old at the time, and the interval since has been six and four years. The roentgenograms show that the bones have grown solidly in place but there has been no growth in length. This experience shows that living bone is available in this way for implants, and that possibly whole joints, tendons and vessels from apes and monkeys might be utilized, but Küttner doubts whether monkey nerve tissue would ever be suitable for grafting. (From an abstract in the *Nederlandsch Tijdschrift.*)

CHANGES IN THE BRAIN IN GAS (CARBON MONOXID) POISONING *

EMORY HILL, M.D.

AND

C. B. SEMERAK, M.D.

CHICAGO

This subject is important for three reasons:

1. Carbon monoxid is liberated by bursting shells and therefore is one of the gases responsible for mortality in the present war.

2. Deaths, accidental and suicidal, from inhalation of illuminating gas are increasingly frequent in civil life.[1] Henderson[2] states that carbon monoxid causes more deaths than all other gases combined. There is a reason to believe that a higher carbon monoxid content in illuminating gas is in part responsible for this. Statistics of certain cities of Great Britain[3] indicate that the higher percentage of such deaths parallels the greater proportion of water gas used in the manufacture of a cheaper product.

3. Carbon monoxid poisoning is of medicolegal significance. A history is not always available, and the characteristic cherry-red color of the blood and chemical proof of carbon monoxid are aids to diagnosis only in the first few days after poisoning. Kolisko[4] in 1914 maintained that carbon monoxid produces invariably a characteristic lesion in the brain, namely, bilateral softening of the lenticular nucleus. We have attempted to discover whether this observation can be confirmed.

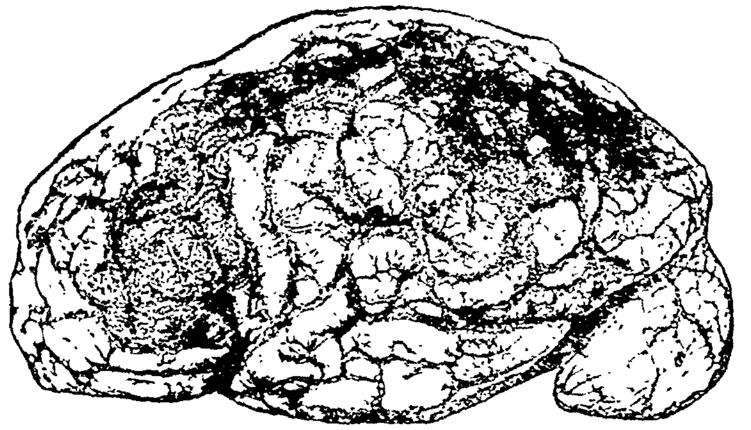
Fig. 1—Extensive hemorrhages in the leptomeninges in gas poisoning.

The present study consists of the examination of thirty-two brains obtained from the postmortem rooms of the Cook County Hospital. In every case the clinical record and complete necropsy report have been available for correlation with the pathologic condition found in the brain. The fresh brains were described on removal, hardened in 10 per cent. dilution of solution of formaldehyd, and again described. Thin cross-sections made by cutting the brain transversely at right angles to the anteroposterior axis were then described. Blocks were removed regularly, including the leptomeninges and cortex from the lateral surface of the hemispheres, corona radiata, centrum semiovale, corpus callosum, lenticular nucleus and internal capsule, pons, medulla and cerebellum. Other areas were selected where gross changes were evident. The blocks were dehydrated in gradually increasing strengths of alcohol, beginning with 20 per cent. in order to minimize the shrinkage of the nerve cells, embedded in paraffin and cut in sections varying from 10 to 15 microns in thickness. The stains used were hematoxylin and eosin, phosphotungstic acid hematoxylin, van Gieson's toluidin blue, Mann's methyl blue, Mallory's connective tissue, Weigert's, Marchi's, osmic acid, sudan III, and Ciaccio's.

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* Because of lack of space, this article is abbreviated in THE JOURNAL by omission of the case reports. They will appear in the reprints, a copy of which will be sent by the authors on receipt of a stamped, addressed envelop.

* From the Department of Anatomy, University of Chicago, and the Department of Pathology, Rush Medical College. This study was made under the supervision of Profs. C. J. Herrick and E. R. LeCount. The expenses were defrayed by an appropriation from a fund contributed to the University of Chicago for this purpose by twelve citizens of Chicago through the efforts of Mr. H. S. Hyman, and an appropriation made by the Otho S. A. Sprague Memorial Institute.

[1] McNally, W. D.: Carbon Monoxid Poisoning, THE JOURNAL A. M. A., Nov. 10, 1917, p. 1586.

[2] Henderson, Yandell: Carbon Monoxid Poisoning, THE JOURNAL A. M. A., Aug. 19, 1916, p. 580.

[3] Mott, F. W.: Arch. Neurol., 1907, p. 246.

[4] Kolisko, A.: Die symmetrische Encephalomalacie in dem Linsenkern nach CO-Vergiftung: Beitr. z. gerichtl. Med., 1914, 2.

In such a series of brains, chosen only by the one circumstance that death was due to carbon monoxid poisoning, there were of course many pathologic changes which cannot be attributed to the gas. Thus syphilis, tuberculosis, pleurisy, pneumonia, nephritis and varying degrees of arteriosclerosis were encountered in various organs, and the picture presented by the brain tissues varied greatly according to preexisting diseases. The effort has been made to determine those changes which may be attributed to the constant factor of the carbon monoxid in the circulation.

FINDINGS

Hyperemia of the brain and leptomeninges was observed in twenty-nine cases. No diagnostic importance is attached to this common appearance in brain disease.[5] Hyperemia of other organs than the brain was frequently present.

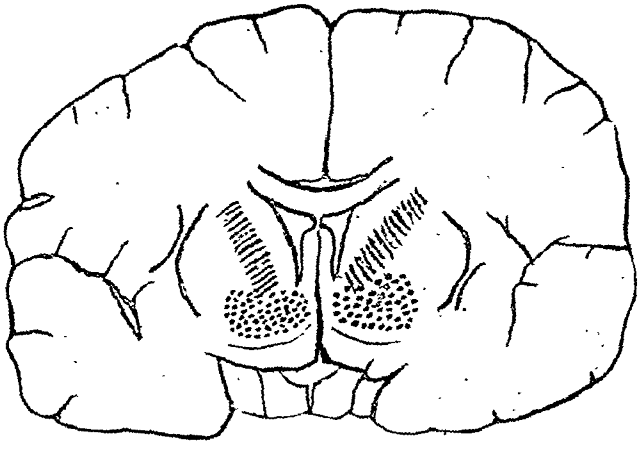

Fig. 2.—Coronal section of a brain, showing the characteristic bilateral softening of the lenticular nucleus in carbon monoxid poisoning; the dotted area represents the softening.

Edema was observed in twenty-one cases. The brains do not dry rapidly as do normal brains, and when hardened they cut with more resistance. The leptomeninges are cloudy, owing to the precipitate from the edematous fluid.

Internal hydrocephalus was noted in twenty-one cases.

A cherry-red color of the blood was noticed in eleven cases, and a pink hue to the white matter of the brain in five cases. These indications of carbon monoxid in the blood may be confirmed by the spectroscopic examination and by various chemical tests,[6] which depend on the persistence of a red color to the serum or coagulum when carbon monoxid blood is mixed with certain chemicals in contrast to the gray, brown or black color of normal blood similarly treated. Of the eleven cases showing the characteristic color, four patients were found dead and five others died within a few hours of poisoning. When death is delayed for some days, these evidences of carbon monoxid poisoning are usually lacking.[4]

Petechial hemorrhages, especially in the leptomeninges and the white matter, were observed in fifteen brains. Frequently the hemorrhages were so minute that only microscopic examination served to distinguish them from the stippled appearance in cross-sections of hyperemic vessels. The predilection of the white matter rather than the gray is explained by the scant anastomoses in the circulation of the former. The hemorrhages are scattered through the corona radiata and the centrum semiovale, tending to be more numerous in the posterior part of the brain. The pons, medulla and brain stem are usually involved. In only one brain did hemorrhages occur in the corpus callosum. This fact deserves mention because of the statement of Mott that hemorrhages in this location are characteristic of carbon monoxid poisoning. Mott's[7] case was one of gas poisoning in the trenches, the history was lacking, and there is a possibility that some other gas was responsible for death. Moreover, concussion hemorrhage was not excluded. Hoover[8] has found hemorrhages in the corpus callosum in poisoning by phosgen gas ($COCl_2$) but not in carbon monoxid poisoning.

Petechial hemorrhages were not limited to the brain. Fifteen cases exhibited such hemorrhages in numerous mucous and serous membranes throughout the body, as the stomach, bowels, peritoneum, renal pelves, urinary bladder, pleura, pericardium, pharynx and larynx and in the skin. Together with these extensive lesions of many organs besides the brain should be mentioned the occurrence in twenty-one cases of hyperplasia of the lymphoid tissue, including the spleen, thymus and tonsils, and the cervical, lingual, biliary, periaortic and intestinal lymph glands.

Arteriosclerosis of the cerebral vessels was noted in the majority of the thirty-two cases. In addition to those in which the degree of arteriosclerosis might be considered proportional to age, nineteen brains exhibited degrees of vascular degeneration excessive for their age. Ten of these patients were under 41 years of age.

Bilateral softening of the lenticular nucleus was evident on gross examination in fourteen brains. Microscopic evidence of necrosis in this region was found in each of the remaining eighteen brains. With an overwhelming dosage of gas producing death quickly, especially in young and healthy persons, gross changes may not be present. In older persons with vascular degeneration, the characteristic softening more often occurs. Age, duration of life after poisoning, amount of gas inhaled and preexisting diseases of the brain are factors influencing the amount of damage to the lenticular nucleus. One of these factors may outweigh others.

In the fourteen brains showing softening of the lenticular nucleus, serious pathologic changes due to various diseases were revealed at necropsy in each case. Ten of these persons were above 40 years of age; seven survived three days or longer; four had extensive tuberculosis; six gave evidence of syphilis aside from a degree of arteriosclerosis out of proportion to age in six others; several were chronic alcoholics. In the eighteen brains in which no gross softening of the lenticular nucleus was found, eleven brains were from persons under 40 years of age; thirteen patients died within three days. Of these, three were found dead, seven died within twenty-four hours, and one in forty-eight hours. Postmortem evidence of serious pathologic changes was much less than in the preceding group showing softening in the lenticular nucleus. The globus pallidus was invariably affected. The putamen and internal capsule were affected to a less degree. When gross softening occurred, the putamen and internal capsule were always included. Three days in solution of formaldehyd is sufficient to bring out the difference between the soft regions and the normal tissue. In extreme cases a slushy mass occupied the position of the lenticular nucleus.

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[5] Slavik: Etiologie Nahleho Umrti, Prague, 1912.

[6] Fishbein, Morris: Illuminating Gas Poisoning, The Journal A. M. A., March 8, 1913, p. 737.

[7] Mott, F. W.: Brit. Med. Jour., 1917, 1, 677.

[8] Hoover: Personal communication to the authors.

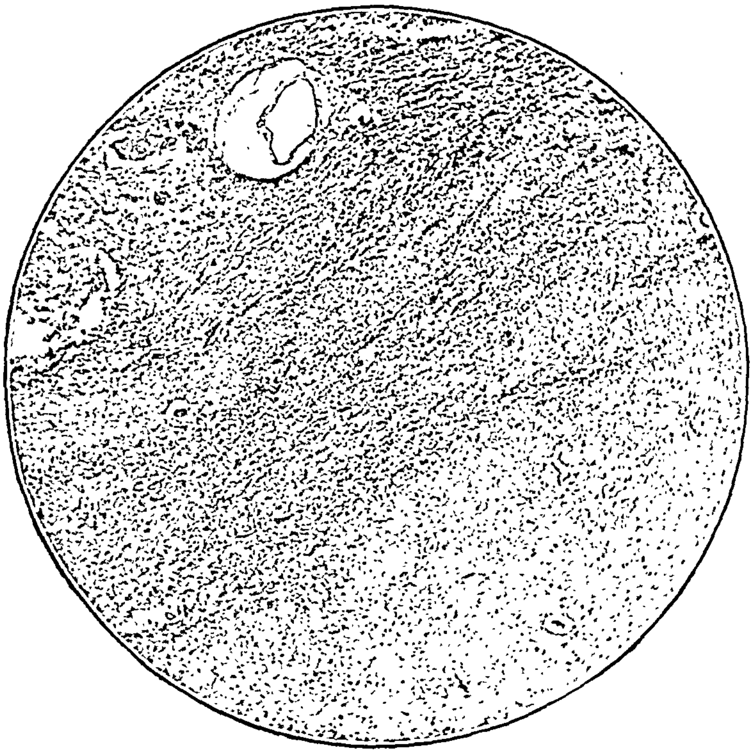

Fig. 3.—Ischemic necrosis in the lenticular nucleus (upper left quadrant).

Microscopic examination confirmed the gross appearance of hyperemia, edema, capillary hemorrhages and necrosis. The striking feature of the minute changes was thrombosis of the veins. In some instances the arteries also contained thrombi. In addition to fibrin masses in the vessels, many contained homogeneous, hyalin-like substances.

Stasis of the circulation without thrombus formation was indicated by agglutinated masses of red cells filling the vessels. The lenticular nucleus was almost constantly the seat of thrombosed vessels. In the six specimens in which thrombi were not seen in this location, the vessel walls were degenerated and partly or entirely digested in the midst of necrosed areas. Varying degrees of damage to the tissues about the vessels were observed. The minimum change was a slight edema. Usually necrosis was manifested by alterations in the glial nuclei, varying from pyknosis to entire disintegration. Frequently a wide region about the vessels was vacuolated and all nuclei destroyed. The arteries were usually empty. The extreme damage to the blood vessels may be in part accounted for by their previous condition, sclerotic changes being rather the rule than the exception in the cerebral vessels in this series. The capillary endothelium was usually fragmented, lying loose in the vessel lumen or altogether absent. Inflammatory changes about the vessels were seldom observed. Occasionally round cells were abundant along with a periarteritis in association with tuberculosis or syphilis in other organs, and one brain showed a polymorphonuclear accumulation. Aggregations of glial nuclei about the vessels suggest the possibility of proliferation of glial tissue, but the varying quantity of such tissue within small areas of the normal brain makes it unsafe to call these accumulations abnormal.

A conspicuous appearance in some of the brains, usually of elderly persons, was the accumulation of spherical masses from 4 to 20 microns in diameter beneath the pia and ependymal linings and about the blood vessels and perivascular lymph spaces in chaplet-like groupings. Their appearance in some regions of necrosis suggests a relationship to nerve cells. Within a small area were observed gradations from slightly altered nerve cells to granular fragments of these cells, with a faint nucleus seen only with the high power lens, to spherical homogeneous bodies. Mott[7] and Poelchen[9] have described droplets which they attributed to fatty degeneration of the vessel walls due to carbon monoxid poisoning. Other writers describe droplets of similar appearance in several types of lenticular degeneration, and numerous explanations are offered for their occurrence. They are regarded as degenerated axis cylinders, myelin sheaths and glial cells, as products of fatty degeneration of the vessel walls, and as products of the blood itself and of the cerebrospinal fluid. Whether they are antemortem products or artefacts is disputed. Shionaya[10] made extensive experiments on the staining properties of neutral fats, esters of cholesterol, myelin and lipoids in the central nervous system. He concludes that these globules are normal constituents of the globus pallidus, and that sex, age and general diseases have no influence on them, but that they are increased in number in all diseases producing degeneration of the nervous tissue. They stain yellow-red with sudan III, and are positive with Ciaccio's stain. The latter gives negative results with neutral fats and

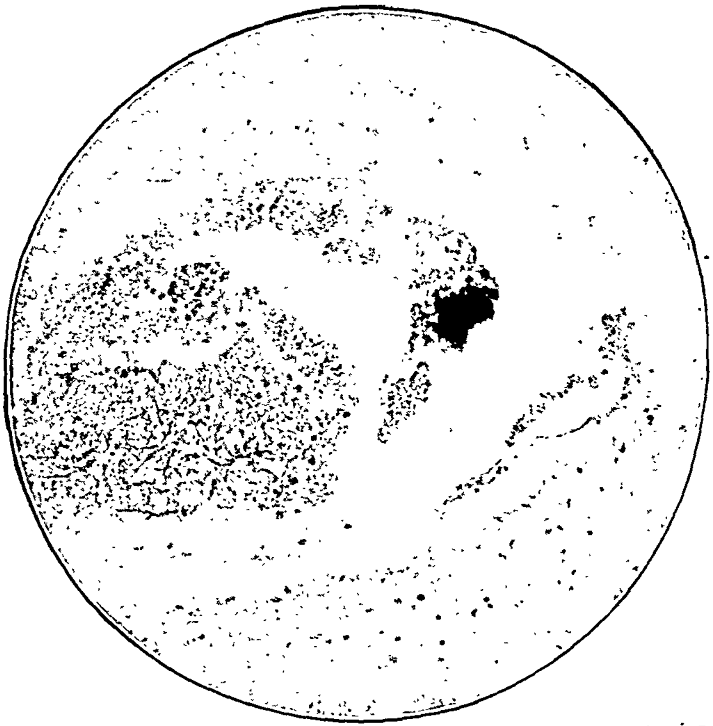

Fig. 4.—Characteristic vascular lesion in carbon monoxid poisoning. Thrombosis; degenerated vessel wall; perivascular necrosis. Phosphotungstic acid and hematoxylin stain, showing fibrin threads in blood vessel.

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[9] Poelchen, R.: Zur Etiologie der Gehirnerweichung nach Kohlendunstvergiftung, Virchow's Arch. f. path. Anat., 1888, **112**.

[10] Shionaya, F.: Mitt. a. d. med. Fak. d. k. Univ. z. Tokio, **14**, 121.

the esters of cholesterol. In our series the spherical bodies stained a deep purple with hematoxylin and eosin, were negative with sudan III, negative for hyalin and myelin with van Gieson's stain, and negative with Ciaccio's stain. From these staining properties we are unable to make a definite classification. Bearing in mind the very high fat content of nervous tissue, we hesitate to attribute such accumulations to fatty degeneration of vessel walls. We presume that the spherical or globular bodies in our series are the same as those described by other authors, but we do not think they have any relation to carbon monoxid poisoning.

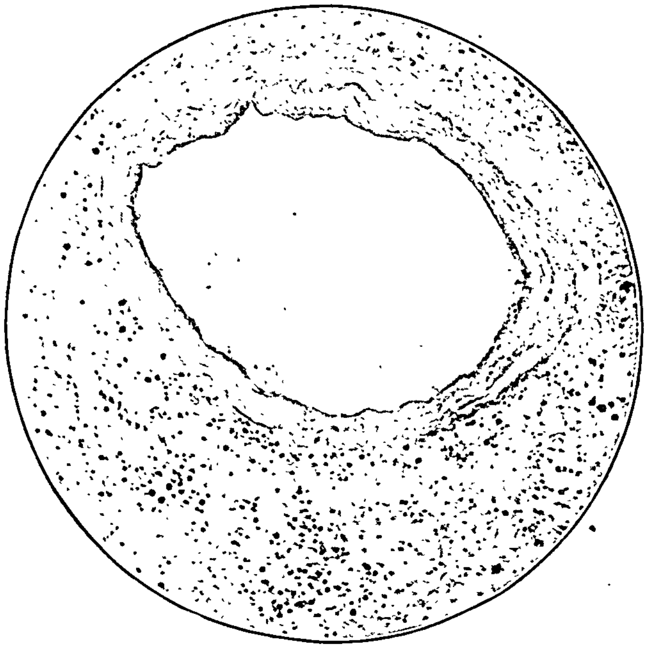
Fig. 5.—Accumulation of spherical bodies about a blood vessel.

COMMENT

Chief interest attaches to the peculiar localization of the principal lesion in carbon monoxid poisoning in the lenticular nucleus and especially in its medial portion, the globus pallidus of both sides of the brain. Von Recklinghausen, Simon, Lesser and Poelchen observed this before Kolisko's monograph on the subject was published. Poelchen was satisfied from experiments that asphyxiation alone does not produce this lesion, but he thought that other poisons acting similarly to carbon monoxid might do so. He attributed the vulnerability of the lenticular nucleus to the long, thin end-arteries supplying this structure. Kolisko considered this explanation insufficient and called attention to the fact that the necrosis is ischemic rather than hemorrhagic. He postulated a mechanical theory, thus: The hairlike anastomosing arterioles arise from the cerebral portion of the internal carotids and their branches, the middle and anterior cerebrals. They pass at right angles from these vessels through the anterior perforated space into the brain substance. In acute poisonings the tissues supplied by these small vessels become anemic and eventually necrotic. The putamen suffers less than the globus pallidus because the vessels supplying the former have some anastomoses with a separate vascular supply. The initial increase of blood pressure in carbon monoxid poisoning tends to force the carotids upward against the brain and outward into the sylvian fissures and thus draws the small ganglionic branches outward from their proper location, which interferes with their circulation. Subsequent diminished blood pressure further lessens their blood supply. Deleterious effects of carbon monoxid on the vessel endothelium add to the retardation of the circulation. Another factor is the swelling of the brain tissue from edema pressing on the blood vessels. Again the widened carotids and their branches press the cerebrospinal fluid against the anterior perforated space and compress the vessels which pass through this space into the basal ganglions. While not altogether convincing, this is perhaps the most satisfactory explanation yet offered for the constant involvement of the globus pallidus.

The engorgement of the vessels of the white matter and their rupture logically follow as compensatory phenomena when the circulation just described has been greatly impeded. Greenacre,[11] in a study of spontaneous cerebral hemorrhages, calls attention to pontile hemorrhages found secondary to hemorrhages in the internal capsule and basal ganglions. She refers to anatomic peculiarities of the vessels supplying the pons (small, short, terminal branches given off at almost right angles from a large trunk), and suggests also a disturbance of blood pressure in the circle of Willis which may act on the posterior branches, as Kolisko describes in the case of the more anterior ganglionic branches.

It seems certain that the blood vessels bear the brunt of the damage in carbon monoxid poisoning. Haldane believes that all the effects can be referred to lack of oxygen, the symptoms increasing with the saturation of the blood with carbon monoxid. He has kept mice alive on exposure to from 200 to 300 times the fatal dose of carbon monoxid in the presence of oxygen, under high pressure (from one to two atmospheres). Mosso repeated the experiment with the same result, using monkeys instead of mice. On the other hand, Lanossier says that animals die sooner and with different symptoms in an atmosphere of carbon monoxid than when asphyxiated by nitrogen.

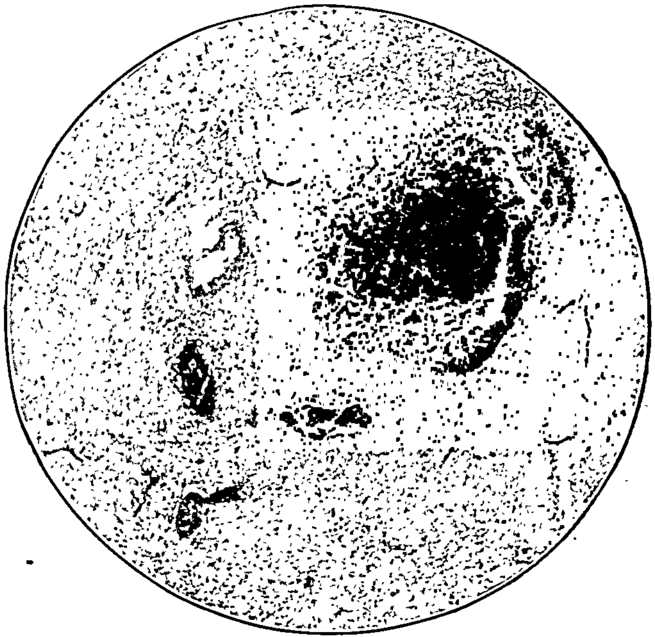
Fig. 6.—Characteristic hyperemia and hemorrhage in the white matter of the brain in carbon monoxid poisoning.

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[11] Greenacre, Phyllis: Bull. Johns Hopkins Hosp., 1917, 28, 86.

Lancereaux thinks that carbon monoxid destroys the red cells which block the vessel lumen and lead to thrombus formation. Mott believes that carbon monoxid dissolved in the blood plasma irritates the endothelium and causes necrosis and rupture. The histologic appearance of the capillaries in our series suggests that the endothelium is extremely vulnerable. The precise method of destruction of vessel walls cannot be determined without animal experimentation carefully controlled, with the use of fresh material specially prepared and stained in a more thorough manner than has yet been undertaken.

The symptoms produced by inhalation of carbon monoxid are explained by the union of this gas with the hemoglobin, for which it has an avidity estimated to be from 200 to 300 times that of oxygen, and by the vascular degeneration consequent on its presence in the circulation.

There is an initial rise in blood pressure, with slow pulse and pounding heart beat. This is followed by lowered blood pressure, rapid and small pulse, with dilatation of the peripheral blood vessels. In mild cases there is a dull headache, flashes before the eyes, dizziness, ringing in the ears, nausea and vomiting. According to Haldane, 20 per cent saturation of the blood with carbon monoxid produces these symptoms. With 50 per cent. saturation one is scarcely able to stand, and faints on slight exertion; 80 per cent. saturation is fatal. The symptoms vary with the temperament of the individual, as in alcoholic intoxication. In severe cases there are cyanosis, difficult respiration, convulsions, paralyses, subnormal temperature, weak and intermittent pulse, and unconsciousness. Pneumonia, both lobar and lobular, follows with great frequency if the patient lives many days.

On recovery from acute poisoning, and in chronic poisoning, the end-results vary according to the previous condition of the nervous system. Existing brain lesions may be accentuated, so that carbon monoxid poisoning has been said to simulate almost every variety of nervous disease.[12] Multiple softenings may produce the picture of insular sclerosis.[13] Paralyses, convulsive seizures, impaired memory and psychoses frequently follow. Suicidal attempts may result from insanity caused by carbon monoxid poisoning, and of course poisoning may be itself the suicidal act of one already insane.

Tremors, muscular spasms and pareses are accounted for by the peculiar involvement of the lenticular nucleus and the internal capsule. We cannot enter here on the disputed questions of the functions of the lenticular nucleus. Wilson[14] has recorded elaborate experiments tending to show that the corpus striatum is independent of the cerebral cortex and exerts a steadying influence on the lenticulo-rubrospinal projection system on innervation of the corticospinal (pyramidal) system, being concerned with the maintenance of the tone of the skeletal muscles. Several syndromes are described in neurologic literature which appear to depend on involvement of the corpus striatum, as paralysis agitans, Wilson's[15] progressive lenticular degeneration, pseudosclerosis of the lenticular nucleus,[16] Voigt's spastic pseudobulbar paralysis, Huntington's chorea, progressive athetosis,[17] and progressive atrophy of the globus pallidus.[18] Pollock[19] has recently reviewed the subject and described very similar changes to those of carbon monoxid poisoning in his case of Wilson's disease. It would perhaps be pertinent to inquire into the possibility of a chronic carbon monoxid poisoning in those diseases in which the lenticular nucleus is softened.

CONCLUSIONS

Carbon monoxid poisoning produces a characteristic lesion of the brain, namely, a bilateral ischemic necrosis of the lenticular nucleus, especially the globus pallidus. This lesion results from the vascular disturbance brought about by the presence of carbon monoxid in the circulating blood which produces a thrombosis with degeneration of the vessel walls. Anatomic peculiarities in the circulation account for the localization of the lesion. The necrosis varies from slight perivascular lesions in the globus pallidus to grossly visible softening of the entire lenticular nucleus and internal capsule, depending on the amount of gas inhaled, duration of life after poisoning, and preexisting pathologic changes in the cerebral vessels.

When death occurs within a few hours, other evidences of carbon monoxid poisoning are available, namely, a cherry-red color of the blood, a pink hue of the brain substance, and petechial hemorrhages in the skin and various mucous and serous surfaces; further, the spectroscopic and chemical tests for carbon monoxid in the blood are positive. These evidences later disappear, and the diagnosis depends on the characteristic lesion in the lenticular nucleus.

Spontaneous hemorrhages in the leptomeninges and punctiform hemorrhages throughout the white matter of the brain are part of the profound vascular disturbances in carbon monoxid poisoning.

Nerve cells possess a high degree of tolerance to the poisonous action of carbon monoxid.

Edema and hyperemia of the brain and internal hydrocephalus are frequent appearances in carbon monoxid poisoning.

Cerebral arteriosclerosis cannot be attributed to carbon monoxid, but it probably increases the vulnerability of the individual to small amounts of the gas.

Carbon monoxid poisoning as a cause for the subsequent development of nervous and mental disease as well as for deaths which may not be explained easily receives emphasis from this study. The occupation and other conditions of living as well as careful gross and microscopic examination of the brain are of importance in demonstrating such a causal relationship.

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[12] McGurn, W. J.: Boston Med. and Surg. Jour., 1917, **176**, 231.

[13] McGurn, W. J.: Interstate Med. Jour., 1917, **24**, 479.

[14] Wilson, A. S. K.: Brain, 1913-1914, **36**, 427.

[15] Wilson, A. S. K.: Brain, 1912, **34**, Part 4.

[16] Strumpell: Deutsch. Ztschr. f. Nervenh., December, 1915.

[17] Spiller: Jour. Nerv. and Ment. Dis., 1916, **43**, 23.

[18] Hunt, J. R.: Brain, 1917, **40**, 58.

[19] Pollock, L. J.: Jour. Nerv. and Ment. Dis., 1917, **46**, 401.

Exercise and the Tuberculosis Patient.—The problem of exercise is one that will frequently tax the acumen of the physician. The febrile tuberculosis patient in whom the maximum daily temperature habitually exceeds 99.5 F. should unquestionably be kept in bed. The best rule is to require the acute case to rest irrespective of temperature, as the condition becomes more chronic to be guided strictly by the thermometer, and when the case has become one that is progressing toward arrest to ignore the slight fluctuations of the temperature. Patients who have large lesions must be treated with more severity in respect to the enforcement of quietude than those with small lesions. Each case must be the subject of special study. As has been well said, the patient who begins to exercise has reached a period of danger in his course of treatment.—*American Review of Tuberculosis.*

Military Medicine and Surgery

END-RESULTS FROM TREATMENT OF COMPOUND FRACTURES OF THE FEMUR BY THE CALIPER METHOD

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Since the appearance of the preliminary report on the treatment of war fractures of the femur by means of extension by the caliper or ice tong method, by Major Frederic A. Besley,[1] more than fifty cases have been treated by this method, and the end-results have been sufficiently satisfactory to merit discussion.

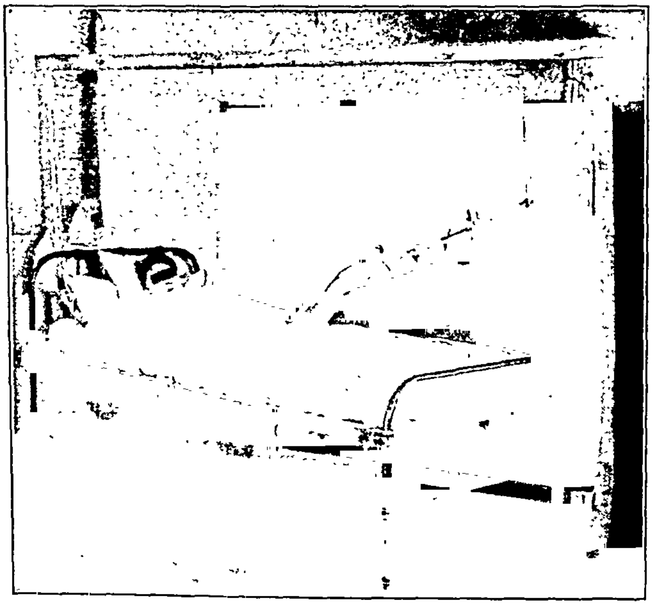

Fig. 1.—Two weeks following injury. The traction is pulling in the same direction as the long axis of the thigh. A fixed foot piece is used in this case. Later glue was applied to the sole of the foot and the foot suspended from above by a small weight in order to relieve pressure from the Achilles tendon and allow voluntary motion of the ankle joint. The weights seen at the head of the bed support the splint. The right sided weight is only 5 pounds in order to prevent unnecessary pressure in the groin. As this is a fracture of the upper third of the femur, extreme abduction is present, though not shown well in this picture.

To review briefly the technic of obtaining extension by means of the calipers: The patient generally arrives at the base hospital within from twelve to forty-eight hours after being wounded, depending on whether or not his condition is satisfactory for transportation. His wounds have usually been excised at a clearing station and all damaged skin, fascia, muscle, detached bone and foreign bodies, such as metal, clothing and dirt, removed. He is transported in a Thomas splint with moderate extension maintained by the use of glue applied below the knee joint. We consider the Thomas splint an ideal one, as it completely immobilizes the part, renders the wounds accessible, provides for extension, is easy to apply, and insures comfortable and safe transportation. On his arrival at the base hospital, the patient's wounds are immediately inspected for the presence of either gas infection or secondary hemorrhage. If his condition is satisfactory, he is made comfortable and allowed to rest for from twelve to twenty-four hours. The following day he is taken to the roentgen-ray laboratory, where his thigh is fluoroscoped. If a foreign body is still present it is localized and the site of the fracture is then plated. The patient is now removed to the operating theater and anesthetized, usually with ether, and the Thomas splint and glue extension are removed, while an orderly maintains moderate traction on the leg. A couple of sand bags are placed under the knee joint to elevate it and the entire condylar area is surgically prepared. A small incision, just sufficient to admit the point of the caliper, is made through the skin and fascia over the most prominent part of the internal and external condyles. The calipers are inserted and driven into the cancellous bone about a quarter of an inch, without any preliminary drilling. The caliper points must enter the bone just above the most prominent part of the condyle, as near the middle as possible, and a little higher on the inner than on the outside.

It is necessary to exercise great care that the caliper points do not enter the knee joint. In eight of our cases which terminated in either amputation or death, dissection of the joint demonstrated that the synovial sac had not been penetrated, and distention of the joint capsule produced by injecting warm gelatin and allowing it to solidify revealed a relatively safe area for the application of the calipers, as is shown in Figures 3 and 4.

Particular care, however, must be taken in those cases in which a marked effusion is present in the knee joint. This condition most often results from a direct trauma to the knee joint, caused by the patient's striking the ground after being wounded. We have been fortunate enough in our cases to avoid this possible complication. The small incision wounds are then iodized and a dry, sterile dressing applied, which is not disturbed during convalescence. The ends of the calipers are tied firmly together to assure the points remaining in place until traction is applied.

The gunshot wounds of the thigh are now examined and paraffin or bismuth iodoform petrolatum packs removed, if present. Any foreign body which remains and is accessible without doing much damage or opening new areas for possible infection is removed, and devitalized muscle or bone fragments without periosteal attachment are excised. Better drainage is provided for, if indicated. Sterile petrolatum dressings are applied to the wounds, and a Thomas splint, bent at the knee, depending on the location of the fracture, is replaced. The thigh and leg are suspended from the splint by means of strips of flannel bandage which are well padded and held in place by metal clips, and a foot piece adjusted so as to hold the foot at right angles and to prevent any inward rotation. The calipers can be applied with either nitrous oxid or local anesthesia. However, if the gunshot wounds are to be explored and better drainage provided, it is better to use ether as routine unless some contraindication for a general anesthetic is present.

The patient is returned to the ward, and while still asleep the entire splint is suspended from a Balkan frame by means of a system of pulleys and weights. A weight of from 10 to 15 pounds, depending on the muscular development of the patient, is applied to the ends of the calipers, the traction being adjusted in the same direction as the long axis of the thigh. No manual force has been used in reducing such infected fractures. Instead, we have depended on our extension and abduction to approximate the fragments. Some abduction has been used in every case, increasing it the higher the fracture is located. The danger of embolus and the possibility of generalizing the infection from manipulation are well recognized.

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[1] Besley, F. A.: Value of the Caliper in Obtaining Extension in Compound Fratures of the Femur, THE JOURNAL A. M. A., Jan. 12, 1918, p. 87.

The maximum weight used for extension has been 16 pounds, and this has been sufficient to paralyze the thigh muscles in every case. During the first twenty-four hours following operation, the patient may have some pain in his knee; but this soon disappears, and he is very comfortable. The wounds are dressed daily or more often, depending on the amount of suppuration present, the clips allowing the supporting flannel to be removed in sections and thus avoiding pain due to the loss of support. The use of a bedpan is made easy by means of a sling attached to the Balkan frame above the patient's head by which he can lift himself from the bed. In place of metal clips, perforated zinc carriers have been used to support the thigh and leg in the splint. These, however, have not been as satisfactory as the clips, as they are easily broken, interfere with roentgen-ray examination, do not permit sectional dressing, and often scratch the hands of the person dressing the wound.

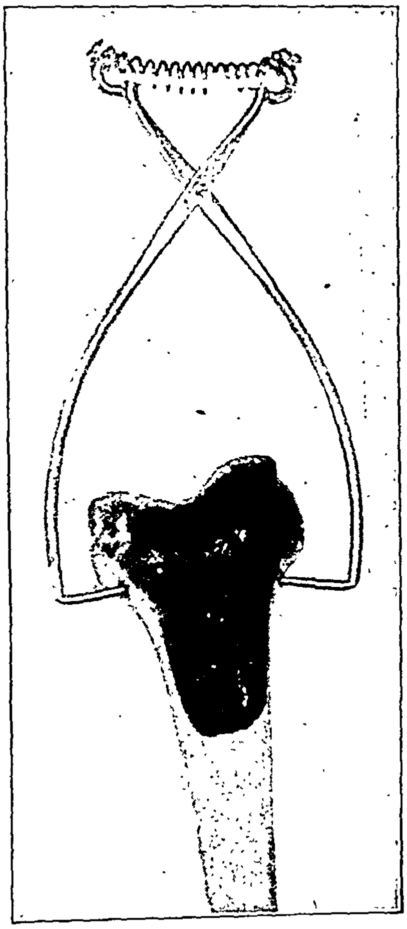

Fig. 2.—Calipers in situ in a femur amputated because of secondary hemorrhage. The blackened area over the articular surface shows the extent of the knee joint and the safe area on each side above the condyles where the calipers can be inserted without entering the synovial sac.

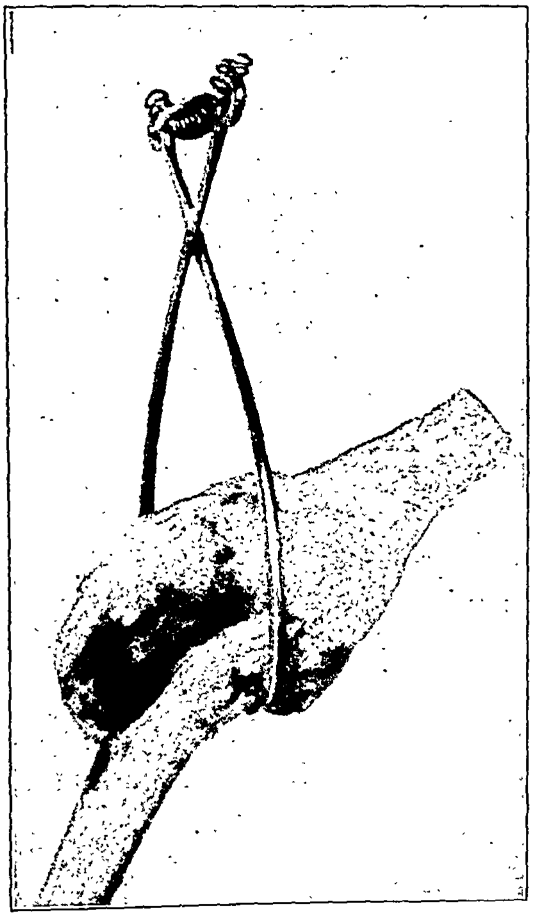

Fig. 3.—Calipers in situ in a case in which amputation was performed because of a severe sepsis. The knee joint has been injected with gelatin to show the extent of the synovial sac. Internal surface.

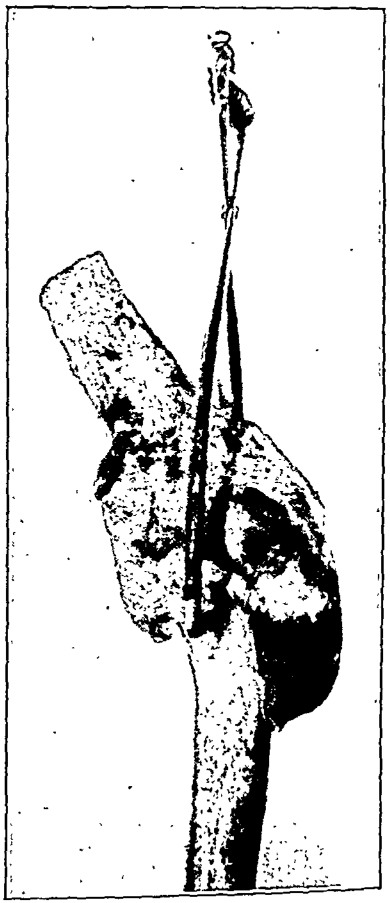

Fig. 4.—Same case as Figure 3, external surface.

The patient's course depends largely on how quickly suppuration can be controlled. No matter how extensive the wounds are or to what degree the bone has been damaged, complete rest is the fundamental principle in healing. In some cases the patient's resistance is good, the infection clears up rapidly, the wounds fill in with healthy granulation tissue, and bone regeneration progresses so that union is present after five or six weeks. In other cases, the sepsis is more stubborn and the pus burrows between the muscular planes of the thigh, collecting in pockets which necessitate subsequent drainage. The traction, which soon paralyzes the thigh muscles and keeps them on a stretch, unfortunately does not entirely prevent the formation of pus pockets. A retained shell fragment, a piece of clothing, or an osteomyelitis with sequestrum formation is usually responsible for the prolonged suppuration of a wound. We firmly believe that gravitation has much to do with the direction in which the pus spreads. Since the Thomas splint is always bent in some degree at the knee, this joint is at a higher level than the hip joint; consequently, favored by gravity, the infection, when it spreads, burrows down toward the buttock, which is the lowest point. In no case has the infection been observed to travel upward toward the knee.

The Thomas splint is often difficult to employ with comfort to the patient when there are extensive buttock wounds, on which the lower half of the ring exercises an anterior or posterior pressure. In such cases the Hodgens splint can be used to better advantage, the thigh being sharply flexed to nearly a right angle and suspended from overhead, rather than from the end of the Balkan frame. This allows the patient comfort and greater ease when being dressed, but is hardly as satisfactory as the suspended net arrangement devised by Major Sinclair, R. A. M. C.

When bony union is partially complete, the patient is again roentgenographed to determine the position of the fragments and the amount of callus formation. He is also roentgenographed any time during this course when correct apposition is doubtful or if there is no attempt at union within a reasonable length of time. The ideal arrangement would be, of course, a portable roentgen-ray apparatus with which each case could be plated and studied in the exact position the fragments occupy while in the frame with extension applied. This apparatus has so far not been used here, and as a result, the exact amount of traction necessary has at times been a matter of conjecture. When bony union is firm according to clinical and roentgen-ray evidence, the calipers can be easily removed in the wards without an anesthetic and without pain to the patient, and a dry sterile dressing applied until the incision wounds are healed.

Gentle, passive motion of the knee joint is instituted at once; in fact, patients are encouraged to move the knee a little at frequent intervals before the calipers are removed, if some degree of union is present. Such motion does not damage the fracture site and has the advantage of eliminating the pain on manipulating the joint when the splint is removed. The same principle applies equally as well to the ankle joint. Some of our cases developed considerable edema of the ankle joint (periarticular) resulting from too great a degree of dorsal flexion of the foot, which was applied to avoid a possible foot drop. A wide piece of flannel bandage or gauze applied to the sole of the foot by means of glue and suspended from over head by a 2 or 3 pound weight accomplished better results than a fixed foot piece, as it allowed voluntary motion of the knee and ankle joint and relieved all pressure from the heel and Achilles tendon. Patients treated in this manner have avoided edema and limited joint motion (because of prolonged immobilization) except in a couple of cases in which the sciatic nerve was partially damaged and consequently the ability to move the foot lost.

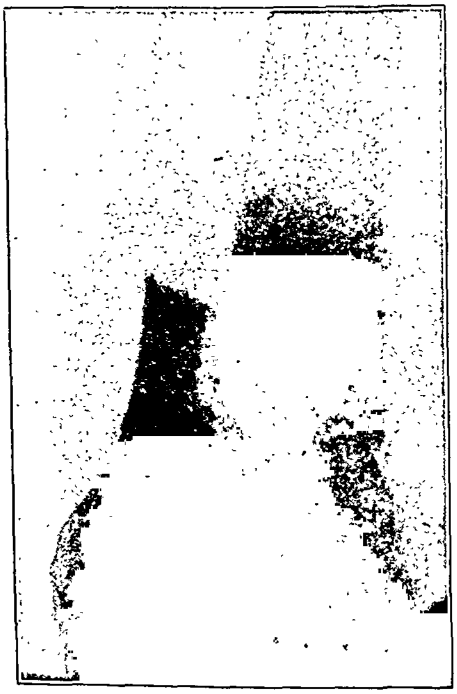

Fig. 5.—Compound comminuted fracture of the lower end of the femur involving the knee joint. Anteroposterior view of the fracture on admission of the patient to the hospital.

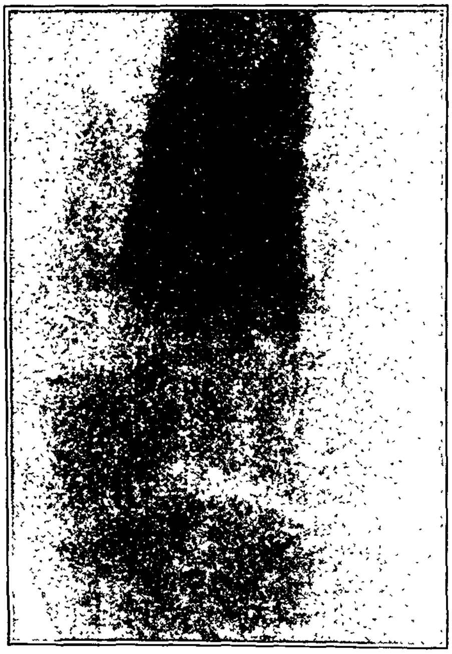

Fig. 6.—Anteroposterior view of the fracture shown in Figure 5 after six weeks of extension with glue. There has been practically no change in the position of the fragments. Three inches of shortening is present.

CALIPER INFECTION

The success of this method of extension and the complete comfort of the patient is going to depend considerably on whether or not the caliper incisions become infected. In our series, this complication occurred in 18 per cent. of the cases, which on first observation may appear very high and sufficient to question the advisability of their use. On careful analysis, however, we find that most of such infections were due to preventable causes, and a second series of cases treated could be kept to a low percentage (2 or 3 per cent.).

Experience has taught us that the caliper incisions after being dressed sterilely and bandaged in the operating theater, at the time of insertion, should be left undisturbed. There is no indication for any further dressing and it only invites infection, as there are frequently suppurating wounds in the immediate vicinity. In a few of our cases we drove in the calipers without any preliminary skin incision, the object being to decrease the possibility of infection. This technic is very satisfactory, provided the caliper points are sharp and do not drive the skin in ahead of them. The calipers used here were all improvised from either meat skewers or wire. As a result of their crude construction, they frequently broke at the cross pieces where they were riveted, or the points bent when driven against the hard bone. Consequently, in a certain number of cases the reinsertion of a second pair of calipers was necessary and this procedure was practically always followed by infection. There is no doubt that the use of a well constructed steel caliper would eliminate the most frequent cause of suppuration around caliper incision.

Another very important cause of caliper infection occurred in patients whose early days in the hospital were attended by delirium due to associated head injuries, and during which time they became violent, tore out their calipers, and infected their caliper incisions. The use of proper arm restraints or a caliper kept firmly locked by a set screw would easily prevent this complication. In two patients, who were profoundly septic during a long period of time, infection around the caliper points developed spontaneously and was probably due to a general lowered resistance of the patient.

When the caliper incisions become infected regardless of cause, how much damage results and how does it affect the patient's comfort and convalescence? In the majority of our infected cases the suppuration has remained localized around the calipers, either on one or both sides, and no drainage has been necessary. In such cases we at first removed all the weight from the calipers until the infection subsided; but lately we have only slightly decreased the traction for a few days if the patient complained of discomfort. In three cases the infection was more severe and gravitated down the thigh, necessitating a long lateral incision through the skin and fascia and allowing free drainage, the amount of traction being decreased for a few days while the infection was most acute.

The question as to how much the calipers damage the cancellous bone of the lower end of the femur is somewhat difficult to answer definitely at this time. In cases not infected, it is certain very little harm is done, and bone regeneration soon fills in the small defect. In infected cases it is quite possible to see how a periostitis and even an osteitis could develop; but we have had neither clinical nor roentgen-ray evidence of such a complication. That infection can be present around the calipers without influencing the bone itself was demonstrated in a case in which the calipers were applied for a period of twelve weeks and infected from the time of insertion, as a suppurating wound was present over the external condylar area. Amputation was performed in this case because of severe sepsis and nonunion, and a cross section of the lower end of the femur, exactly through the site of the insertion of the calipers, revealed no bony destruction. It would appear that if periostitis or osteitis were prone to occur, this would have been a favorable case, as the patient was emaciated, had multiple septic wounds of the legs, bilateral gangrenous trench foot and little ability to resist infection. No case in the entire series presented any signs of damage to the bony structures by the calipers or evidence of a consequent osteomyelitis.

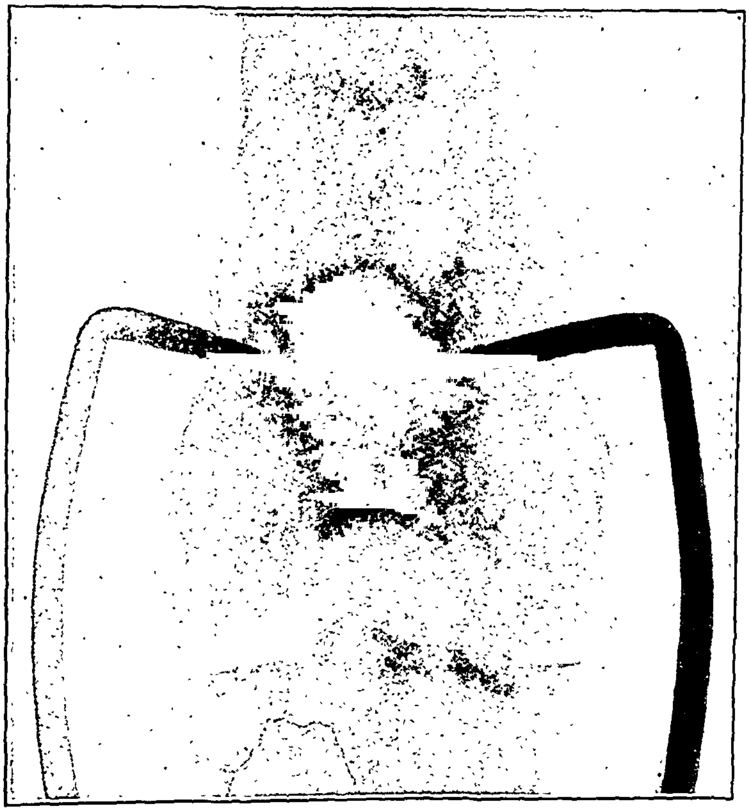

Fig. 7.—Anteroposterior view of the fracture after seven weeks of caliper extension. No shortening present. The calipers have been driven in a little too far in this case.

CONTRAINDICATIONS FOR THE USE OF CALIPERS

There are very few contraindications for the application of the calipers in fractured femurs, and we have used them alike in both the simple and the compound varieties and regardless of the site of the fracture and the amount of comminution. In cases in which one or both condyles have been shot away they are of course impracticable. When suppurating wounds are present over the condylar area with little or no accompanying bone damage, the insertion of the calipers is questionable and would depend largely on the judgment of the surgeon and on his decision as to whether or not he would care to risk infecting the cancellous bone.

The presence of suppurating wounds near the site of introduction of the calipers is hardly a contraindication for their use since by bandaging the incisions and then leaving them undisturbed, usually no infection results. Comminuted fractures of the lower end of the femur involving the knee joint have been treated by this method of extension with very favorable results.

ANALYSIS OF CASES

The number of cases reported in this series is limited to fifty, because at the end of that time segregation of all fractured femurs in a special hospital was recommended by the British Surgical Service. Practically all the patients were healthy, well developed men whose average age was about 28 years. The youngest was a boy of 18, while the oldest was a Scotchman of 57, who, in addition to his compound fractured femur, had a shattered arm which demanded immediate amputation. His course was very septic and terminated fatally in about five weeks with a bronchopneumonia. The right and left thighs have been about equally involved. In regard to the location of the fracture, 33 per cent. were present in the upper third of the thigh, 54 per cent. in the middle third, and the remaining 13 per cent. in the lower third. Only two of the fractures, or 4 per cent., were of the simple variety, and of the 96 per cent. that were compounded, over one half were badly comminuted in addition.

The wounds of the fleshy parts of the thigh varied from small, sharply defined tracts to extensive evacuations with much loss of substance. They had practically all been excised and left open, and so were infected at least to some degree when reaching the base hospital. Primary union was therefore not common, and seen in only two cases. The length of time required for the wound to heal by secondary union varied considerably. In at least 75 per cent. of the cases, healing was complete by the time the bone had firmly united, so that the patient could be evacuated to England; and in 25 per cent. of the cases there was some serous or purulent discharge on transferal. Foreign bodies remained present in 40 per cent. of the cases, either one or many pieces of metal. In two cases large pieces of shrapnel were removed, followed by rapid closure of the wound. Thirty per cent. of the cases required a second operation of some variety, either for removal of foreign bodies and a provision for better drainage or an amputation.

It is not the purpose of this paper to discuss the relative merits of the various chemical substances used in treating infected war wounds. Fundamentally, their success or failure depends largely on the thoroughness of the primary mechanical cleansing of the wounds rather than whether bismuth iodoform petrolatum or the Carrel-Dakin treatment is used later. In this series, the wounds were for the most part dressed with sterile gauze, either dry or smeared with petrolatum to prevent adhesion. When the suppuration was profuse and of a very foul odor, and considerable necrotic tissue was present, eusol dressings were used with satisfactory results; and when the infection was acute with a tendency to spread, hot boric fomentations, changed every four hours, were employed to good advantage. The open air treatment was impracticable at this time of the year, owing to the low temperature of the ward.

The average length of time necessary to obtain firm, bony union has been from eight to nine weeks, and it has been our policy to keep the calipers in place with some traction applied until such union was obtained. The question has been raised, whether, after six or seven weeks of heavy extension, the muscles are not paralyzed to such a degree as to prevent subsequent shortening, even though the callus is not firm. In two of our cases in which the extension was removed after seven weeks and the callus was still soft, the muscles were able to recover and increase the amount of shortening by nearly an inch. In our cases of delayed union, either due to the primary destruction of much bone or to severe sepsis, we have kept up extension by means of the calipers for fourteen or fifteen weeks, the traction being decreased to 5 or 6 pounds during the later weeks.

The end-results as regards shortening and deformity can be thus summed up: The total shortening in forty cases evacuated to England amounted to 15½ inches, all of this occurring in eighteen cases. Of the remaining twenty-two cases, twelve presented similar measurements of both thighs, and ten showed a total lengthening of 5½ inches. This gives an average shortening per patient of three-eighths inch. The greatest amount of shortening in any case was 2 inches and resulted from the calipers being removed early because of infection, and no other method of extension could be substituted. The greatest amount of lengthening obtained was 1¼ inches, occurring in a badly comminuted fracture in the trochanteric region. Particularly good results were obtained in several cases which had been held in extension by glue for several weeks and reached us with little or no union and much shortening. In one patient this amounted to 4 inches, and by caliper extension it was reduced to three-quarters inch.

Roentgenograms were taken in nearly all cases before and after treatment. In 70 per cent. of the cases the final plates showed satisfactory results, that is, good alinement, little or no angulation or overriding, and abundant callus formation. The remaining 30 per cent. presented some deformity, either an overriding due to deficient traction, or angulation due to faulty supports or too little abduction. This was marked in but three cases, and even in these, a useful leg was assured. Two patients had no attempt at bony union after sixteen weeks of treatment, so they were then evacuated to England. This nonunion was rather difficult to explain, as their courses had been absolutely afebrile except for the first few days, their wounds never suppurated markedly and healed within a few weeks, and the roentgen ray showed a satisfactory position in both anteroposterior and lateral views with no foreign bodies or sequestrums present.

Thigh amputation was necessary in 14 per cent. of the cases. Two were indicated because of severe secondary hemorrhage, and extreme sepsis with nonunion was responsible for the remaining five. The mortality in this series was 14 per cent., four of the amputations having a fatal termination. Of the three remaining deaths, two were due to acute bacillary gangrene which had extended so that amputation was useless, and one was due to a bronchopneumonia. Ten per cent. of the patients presented partial or complete sciatic nerve injury and had lost both motor and sensory power in the affected foot and leg. This condition remained practically stationary during their entire convalescence.

The technic of this form of extension in fractured femurs and the calipers themselves have not reached perfection as yet, and with an improvement in technic and materials with which to work, even more favorable end-results can be expected. The British medical stores are now furnishing a well made, nickel plated steel caliper, which was modeled after the crude wire ones we used. This new caliper, however, has certain faults, the most serious being that the point of crossing of the calipers, where they are riveted, is not close enough to the ends where the traction is applied. By advancing this point of crossing, which represents the fulcrum, the leverage has been correspondingly increased, with the result that when a 15 pound weight has been applied for traction, the caliper points have been gradually forced into the cancellous bone, much farther than is necessary. Such a result occurred in which we used these ordnance calipers, and similar results have been reported to us from other hospitals where they are now being used. The substitution of a set screw in place if a rivet would be a distinct improvement in that the caliper points would be held as firmly in the bone as a nail driven entirely through, and there could be no loosening of the points when the traction is temporarily removed, as is necessary in transporting the patient to the roentgen-ray laboratory. At present instead of a set screw we use a stout cord or a small spiral spring to hold the handle ends of the calipers together. The caliper method accomplishes everything that the Steinman nail driven through the lower end of the femur does, and has the advantage of causing less damage to the bone and less danger of a central osteomyelitis.

The Rain-Barrel Mosquito.—If there is a rain barrel, or any receptacle for stagnant water about premises, the notice of the Connecticut State Entomologist will serve as a warning. It says: Even though all fresh water swamps are drained we may suffer from the bites of the house or rain-barrel mosquito which enters the house and bites after dusk. This kind of mosquito breeds in rain-water pools, rain barrels, tubs, buckets, tin cans, etc.; in fact in any receptacle which may fill with water when the first hard shower comes. Wherever any building operations are being carried on, there are usually tubs or barrels of water, and many householders carelessly leave around the premises tubs, kettles, or tin cans which serve as breeding places; then too, old cisterns, clogged roof gutters, eave spouts and leaders occasionally furnish a breeding place and should be given attention. A little kerosene applied to the surface will kill all "wrigglers." Everyone should see that no such possible breeding places exist on his premises, but we cannot depend on everybody to look out for this. Hence it is essential that municipal inspectors be sent from house to house for this purpose. If mosquitoes are troublesome just after dark, it is reasonable to suppose that they are rain-barrel mosquitoes and that their breeding place is close at hand, probably on the premises. The first thing to do then is to search for stagnant water, for without stagnant water there can be no mosquitoes. If rains are abundant, all receptacles and depressions will fill with water; but if there are no receptacles and no depressions to hold water, there will be no mosquitoes even in a wet season.

INTRADERMAL VACCINATION AGAINST SMALLPOX

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By intradermal vaccination is meant the deposition of smallpox virus between the layers of the skin. In the days of smallpox inoculations, Sutton,[1] and later Dimsdale,[2] in their respective methods aimed to deposit the variolous material between the skin layers. Ruhräh,[3] in describing the various methods of vaccination, says, "Another method is the intradermic injections of the lymph, which is done with a hypodermic syringe, the needle being introduced not through the skin but into it, and a small quantity of lymph injected." He gives no further description of the technic used, nor any reference to the original work on which the statement is based. Force and Beckwith,[4] as a result of their study of the skin reactions following the intradermal injection of vaccine into rabbits previously sensitized by vaccination, offer injection of virus as a method for the laboratory diagnosis of smallpox. The articles by Ruhräh and Force and Beckwith are the only two references to the intradermal injection of smallpox virus for any purpose that could be found after a rather careful search of all easily accessible literature. It seems justifiable to conclude, therefore, that relatively few published observations have been made with this method, or else the observations that have been made, possibly, did not warrant further investigation along this line.

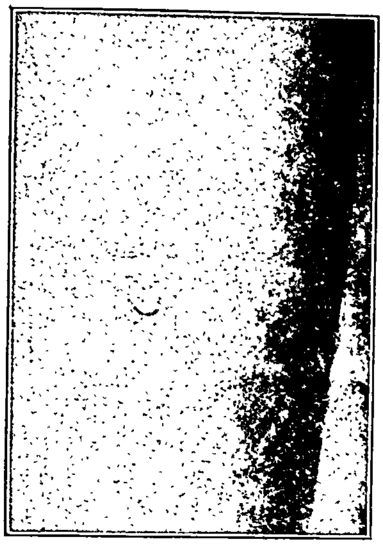

Fig. 1 (No. 11054).—"Take" by intradermal method; tenth day after vaccination. Two sites of injection used. The two circles of vesicles are confluent. No history of smallpox; man never vaccinated in civil life; since entry into the service, vaccinated seven times with negative results.

VARIOUS METHODS OF VACCINATION

In describing the various methods of vaccination, Rosenau[5] states that the virus may be introduced in three ways, namely, (1) by puncture, (2) by scarification, and (3) by incision.

Puncture.—A few simple punctures are made with a needle and the virus rubbed in gently. This method, according to Rosenau, is less apt to yield satisfactory results because of the attenuation, by dilution with glycerin, of the virus used today. In Hill's method the punctures are made through the drops of virus applied to the skin. This method has been used with excellent results by DeLanney.[6]

Scarification.—A series of cross scratches are made with a needle, scalpel or ivory point, and the virus is gently applied to the abraded surface. Copeman[7] thinks that application of the lymph to the skin, followed by scarification through the lymph, gives the best results. The scarification method has been practically discarded by the profession universally, because of the large number of infected arms that have followed its use in comparison with other methods, a result that is due to the large crust or scab that forms and favors infection.

Incision.—This method is very properly known as the Army method of vaccination. The following abstract taken from Vedder[8] is self-explanatory:

> Bulletin No. 30, W. D., Washington, July 15, 1914. In carrying out the requirements of Paragraph II., General Orders No. 30, War Department, 1914, all vaccinations will be preceded by cleansing of the site, preferably the brachial insertion of the deltoid, with water and alcohol.
>
> The skin at selected site must be clean; antiseptics are not necessarily employed; should they be used they must be washed away with sterile water that the activity of the virus be not destroyed. Washing with warm water, followed by alcohol, is usually sufficient, the alcohol being permitted to evaporate before proceeding. Scrubbing with soap and water is necessary for a dirty skin, but needless irritation of the skin is to be avoided.
>
> The procedure described as follows is preferable to "scarification," which will no longer be used.
>
> Incision is the method of choice and it should be made with the point of a sterile needle producing a "scratch." A sterile scalpel may be used, but is more likely to cause bleeding. The incision or scratch should preferably not draw blood. There should be at least two incisions, three quarters of an inch long and one inch apart; after exposure to smallpox, four incisions will be made. The virus is then placed on the abraded surface and gently rubbed in, unnecessary irritation being avoided.
>
> The wound is allowed to dry thoroughly and can be left without dressing, though several layers of gauze may be applied with adhesive plaster. Any dressing that retains heat and moisture is bad. Shields will no longer be issued.

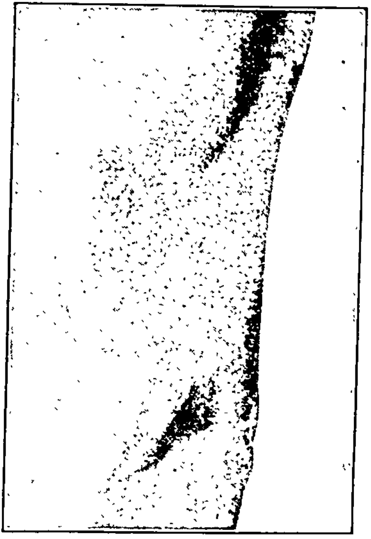

Fig. 2 (No. 9474).—"Take" by intradermal method; eighth day after vaccination. One site of injection used. Below are seen the scars resulting from an incision method vaccination done on the same day. Man never vaccinated in civil life; since entry into the service, vaccinated five times with negative results.

Cope[9] makes four incisions through 4 drops of lymph applied to the skin, each drop being situated about 1 inch from either of the others. Force[10] removes a small circle of epidermis with a chisel, by rotary motion, and then applies the virus; with his method he obtained on first insertion 95.8 per cent. "takes" on all that he vaccinated, as contrasted with 63.8 per cent. by the old method. Knöpfelmacher has produced immunity in children by the subcutaneous injection of glycerinated virus diluted with physiologic sodium chlorid solution.[11]

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[1] Sutton, Daniel: The Inoculator or Suttonian System of Inoculation, London, 1796, p. 77; introduced in England in 1763.

[2] Dimsdale, Thomas: The Present Method of Inoculating for Smallpox, Philadelphia, 1771, p. 18.

[3] Ruhräh, John: Billings-Forchheimer's Therapeusis of Internal Diseases, New York, D. Appleton & Co., 1917, **2**, 69.

[4] Force, J. N., and Beckwith, H. L.: A Laboratory Method for the Diagnosis of Smallpox, The Journal A. M. A., Aug. 14, 1915, p. 588.

[5] Rosenau, M. J.: Preventive Medicine and Hygiene, New York, D. Appleton & Co., 1917, p. 9.

[6] DeLanney, E. L.: The Army Method of Vaccination, Mil. Surgeon, 1918, **42**, 84.

[7] Copeman, S. M.: Modern Methods of Vaccination, Lancet, London, 1901, **2**, 1721.

[8] Vedder, E. B.: Sanitation for Medical Officers, Philadelphia, Lea & Febiger, 1917, p. 15.

[9] Cope, A. E.: Vaccination with Glycerinated Calf Lymph, Brit. Med. Jour., 1902, **2**, 43.

[10] Force, J. N.: An Investigation of the Causes of Failure in Cowpox Vaccination, The Journal A. M. A., May 9, 1914, p. 1466.

IMPORTANCE OF SUCCESSFUL VACCINATION

Today the importance of the successful vaccination and revaccination of troops is appreciated by the medical officers of all armies. In the Three Hundred and Sixty-Seventh Infantry, with which regiment I am serving, the regimental medical officers found large numbers of men on whom repeated revaccinations, and, in many cases, primary vaccinations by the prescribed incision method, gave negative results. The question immediately arose as to whether or not these men were immune to smallpox. According to their histories, very few of them had ever had smallpox, while arm examinations for vaccination scars showed that the majority of them had been successfully vaccinated in civil life — in most cases from ten to fifteen years previously. Some were found who had never been successfully vaccinated against smallpox and had never been through an attack of the disease. Therefore, it seemed reasonably clear that most of them were not immune, and that those who were immune possessed only a partial immunity. At the same time it was evident that their failure to give "takes" was not due to the virus used, because with it we were daily getting a large number of "takes" on other men. Then it occurred to me that intracutaneous injections of vaccine virus might prove to be a more satisfactory method of virus transference than the one that we were using; therefore, it was for the purpose of reducing to a minimum the number of unsuccessful vaccinations in the regiment that this work was undertaken.

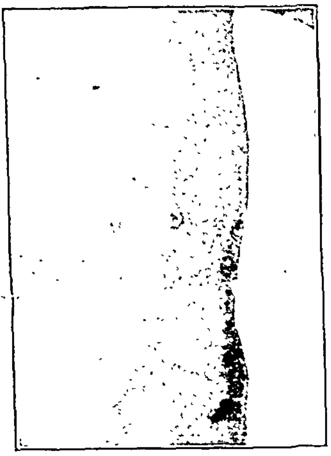

Fig. 3 (No. 9471).—Vaccinoids by both methods; outer one by the incision method; seventh day after vaccination. One site of injection used. His tory of smallpox eleven years before.

THE INTRADERMAL METHOD

The method used was as follows: Virus treated with a glycerol-phenol solution was used. The composition of the glycerol-phenol solution was: phenol (carbolic acid), 1 part; glycerin, 49 parts, and water, 50 parts. The virus was diluted with equal parts of sterile distilled water immediately before using, although in a few of the first cases undiluted virus was used. Dilution of the virus was made solely to avoid waste, because I soon discovered that the diluted virus gave just as good results as the undiluted; and sterile distilled water was used for dilution instead of glycerin because it was feared that further dilution with glycerin might cause too much attentuation of the virus. One tenth c.c. of the diluted virus was injected intradermally by means of a sterile tuberculin syringe and a relatively fine needle, which was also sterile. I used needles size 26 according to the English standard wire gage No. 189. The site of injection was the skin area covering the insertion of the deltoid muscle. In some of the cases only one insertion was made, but, in most of the cases, two injections were made, one being separated from the other by a distance of about 1 inch. Two injections are preferred because of the larger area of vesicle formation that results, thereby affording one a better sense of protection, if not actual protection. Control vaccinations by the incision method, as described above, were made on all men vaccinated by the intradermal method; they were made on the same arm, on the same day, and the same virus was used in the two methods. Control injections of the virus-free glycerol-phenol solution, of exactly the same percentage composition as the fluid medium in which the virus was preserved and as shown above, were made on sixty of the men who volunteered. Two tenths c.c. of this solution was used for each injection, which was also made intradermally.

RESULTS

Intradermal vaccinations and controls by the incision method were carried out on a total of 227 men. All of these men during the preceding four months had been unsuccessfully vaccinated by the incision method a number of times, the number varying from two to eight. "Takes" were obtained in 160, or 70.48 per cent., of the cases by the intradermal method, whereas "takes" were obtained in only nineteen, or 8.3 per cent., of the same cases by the incision method. All of the nineteen cases that showed a "take" by the incision method also showed a "take" by the intradermal method. There were sixty-seven cases that failed to show a "take" by the intradermal method; in all but four of these cases, however, the vaccination site showed either an "immunity reaction" or "vaccinoid." The "immunity reaction" occurred in most instances. The 208 cases that did not give a "take" by the incision method exhibited "immunity reactions" and "vaccinoids" in but few instances. The "immunity reactions" and "vaccinoids" that occurred in these cases were identical in every way with those described by Kolmer.[12]

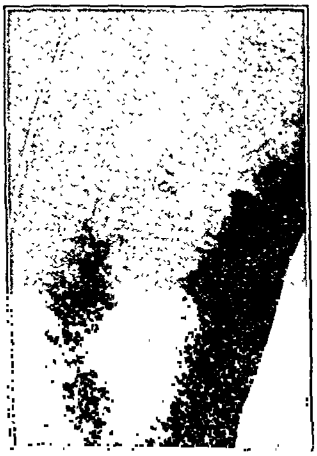

Fig. 4 (No. 9479).—"Take" by both methods; eighth day after vaccination. One site of injection used. No history of smallpox. Man never vaccinated in civil life; since entry into the service vaccinated three times with negative results.

In Table 1, the number of unsuccessful vaccinations by the incision method during the past four months is detailed, as well as the results obtained by myself with both methods.

Table 2 shows the results obtained in the case of men who had never been successfully vaccinated in their lives, as compared with the results obtained on men who had been successfully vaccinated at some time prior to their entry into the military service.

Of the eight men who had never been successfully vaccinated, and whose results by the intradermal method were unsuccessful, it was found by inquiry into their histories that seven had had smallpox, three of them having had it five years before, one one year before, one four years before, one eight years before, and one eighteen years before. Of the fifty-nine unsuccessful cases by the incision method in this same group, a history of smallpox was obtained in only seven instances.

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[11] Knöpfelmacher, quoted by Force, J. N., and Beckwith, H. L.: A Laboratory Method for the Diagnosis of Smallpox, The Journal A. M. A., Aug. 14, 1915, p. 588.

[12] Kolmer, J. A.: A Practical Text-Book of Infection, Immunity and Specific Therapy, Philadelphia, W. B. Saunders Company, 1917, p. 678.

TABLE 1.—UNSUCCESSFUL VACCINATIONS BY INCISION METHOD, AND RESULTS WITH INCISION AND INTRADERMAL METHODS

No. of Times Unsuccessfully Vaccinated in Army	Total Number Vaccinated	"Takes," Intradermal Method	"Takes," Incision Method	Unsuccessful Intradermal Method	Unsuccessful Incision Method
1	6	6	0	0	6
2	34	23	2	11	32
3	68	51	8	17	60
4	44	31	3	13	41
5	44	29	3	15	41
6	17	12	1	5	16
7	12	7	1	5	11
8	2	1	1	1	1
	227	100	19	67	208

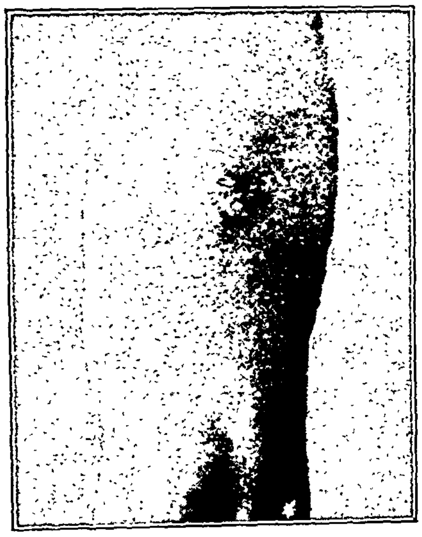

Fig. 5 (No. 9472).—"Take" by both methods; eighth day after vaccination. Two sites of injection used. Man never vaccinated in civil life; three unsuccessful vaccinations since entry into the service.

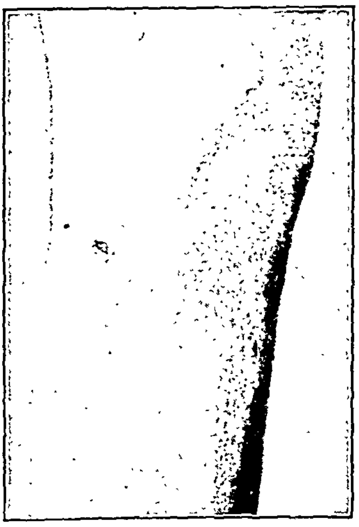

Fig. 6 (No. 9473).—Vaccinoid by intradermal method; nothing by *incision method; seventh day after* vaccination. Last "take," twenty years before.

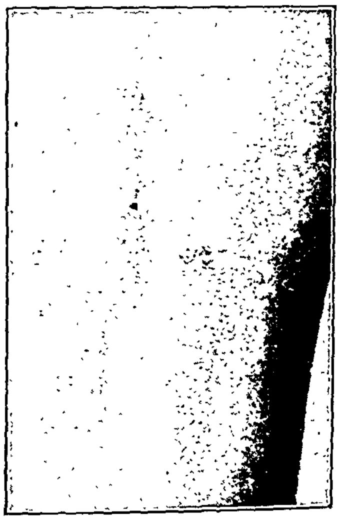

Fig. 7 (No. 9833).—Immunity reaction by intradermal method; second day after vaccination.

The course of the eruption as it occurs in primary vaccination by the intradermal method is similar in every way to the course as it occurs by all other methods, except for the arrangement of the vesicles, which form a circle around the site of virus deposition. The vesicles appear as a rule on the sixth day and become pustules on the seventh or eighth day. The vesicles are multicolor. The center of the circle of vesicles is depressed, and shows early scab formation. On the eighth or ninth day the circle reaches its maximum diameter, at which time it measures from 0.5 to 1.4 cm. After the ninth or tenth day the vesicles begin to dry up, and at the end of from twelve to fourteen days the vaccinated area is marked by a dark brown scab that is sharply circular in outline. This scab falls off in from eighteen to twenty-four days and leaves a sharply circumscribed reddish, circular depressed scar, which may or may not show foveation.

In revaccination "takes" by the intradermal method the vesicles become pustules on the sixth or seventh day, and the size of the circle of vesicles is smaller—their maximum diameters measuring from 0.4 to 0.9 cm.—than the size circles obtained in the primary vaccination cases.

One circle of vesicles surrounds each site of virus injection.

It is seen that the circular arrangement of the vesicles around the site of virus injection is a constant and characteristic feature of the method, and is the only difference to be noted. The virus produced evidence of its activity by vesicle formation only at points where the skin layers were but slightly separated, which explains the circular arrangement of the vesicles; the actual site of virus deposition is marked by the dark depressed central scab, which is due to the local necrosis produced by the mechanical and chemical injury to the skin at that point.

In none of these cases did *any infection occur*, and the local reactions in the severest cases were relatively mild as compared with the severe reactions that so often follow vaccination by the incision method.

In the cases of primary vaccination with no history of smallpox, the circle of vesicles was the same size in practically all of the cases, measuring approximately 1 cm. in diameter. In the cases with a history of smallpox, and also in the revaccination cases, the size of the circle or area of vesiculation varied in a most remarkable way according to the time that had elapsed since the attack of smallpox or the previous vaccination; the more recent the smallpox attack or revaccination, the smaller the circle of vesicles—a result that is not at all surprising because in all of these cases exactly the same amount of virus was introduced, and it seems only reasonable that the size of the area of vesiculation should vary in direct proportion to the immunity against smallpox that the person vaccinated possesses.

TABLE 2.—RESULTS ACCORDING TO SUCCESS OF PREVIOUS VACCINATIONS

	Total	Intradermal "Takes"	Incision "Takes"	Intradermal Unsuccessful	Incision Unsuccessful
Men never successfully vaccinated before.............	52	44	9	8	43
Men successfully vaccinated before	175	116	10	59	165

With this method it is possible to deposit a definite amount of virus of known strength in each instance; and, after having observed that a definite relationship exists between the size of the reaction area and the immunity to smallpox the injected person possesses as shown by his history, I am convinced that intradermal injections of vaccine virus will prove to be a most satisfactory and reliable method for the estimation of the relative immunity of individuals to smallpox, if a sufficient number of observations are made.

The arms of the sixty men on whom control injections of 0.2 c.c. of the glycerol-phenol solution were made showed at the end of twenty-four hours a small area of erythema, measuring about 2 mm. in diameter; while at the end of forty-eight hours all traces had disappeared. It is apparently clear, therefore, that the results obtained were due not to the irritant action of the glycerol-phenol solution on the skin, but rather to the activity of the virus itself, and also that pressure necrosis is not to be considered a factor in their production.

The amount of time required for vaccinating a large number of men by this method is slightly less than the amount required for vaccinating the same number by the incision.

The only disadvantage of the method is the relatively large amount of virus used in comparison with other methods. With 1 c.c. of virus it is possible to vaccinate from sixteen to 20 persons, while by most other methods 1 c.c. is a sufficient amount of virus for forty or fifty vaccinations.

CONCLUSIONS

1. This comparative study of 227 cases, with all conditions equal, shows that vaccination by the intradermal method gives a much higher percentage of "takes" than vaccination by the incision method, in a group of cases in which recent repeated vaccinations by the incision method had failed.
2. There is less chance for infection.
3. It is the only method by which a definite and known amount of virus can be deposited.
4. It may prove to be a method by which a fair index of the relative immunity of persons to smallpox can be obtained.

The virus used was furnished by the Board of Health, New York City, through the courtesy of Dr. W. H. Park.

Alimentary Dropsy.—An abstract in the *Correspondenz-Blatt* from the *Deutsche medizinische Wochenschrift,* 1917, No. 29, relates that numerous cases of "edema disease" had been encountered by the writers in prisoners' camps, at various times, and finally quite an epidemic developed in their service in a civilian hospital, and numerous cases were sent in from outside at the time. The elderly were in the majority, and the dropsy was the first symptom to attract attention. Considerable bradycardia accompanied the edema, but nothing pathologic on the part of the kidneys could be discovered. Under bed rest the dropsy subsided, and except for weakness for a time there were no further disturbances. They state that the epidemic occurred at a time when there was a scarcity of potatoes. Turnips and carrots were the mainstay. They were taken in the form of soup, sometimes three times a day. The diet thus contained ample carbohydrates and an excess of fluids, but too little fat. When the diet was improved, especially when potatoes became available, no further cases were seen.

CHLOROFORM ANALGESIA BY SELF-INHALATION AS ADAPTED FOR DRESSING WOUNDS *

TORALD SOLLMANN, M.D.
CLEVELAND

The needs of the war, especially the frequent dressing of painful wounds, have emphasized the desirability of a suitable, prompt, brief, safe, and if possible, pleasant method of anesthesia, or rather analgesia, especially such as could be given in the ward, without moving the patient. Full ether or nitrous oxid anesthesia is effective, but each has obvious drawbacks and limitations. They are too liable to produce nausea, and to upset the patient generally.

Several methods of meeting the problem have been suggested. L. J. Hirschman[1] describes a method used in British hospitals, consisting in the inhalation of a fixed dose of an ethyl chlorid-chloroform-ether mixture. Gwathmey and Karsner[2] describe a gastric method, consisting essentially of a solution of ether in liquid petrolatum.

The work reported herein had been planned and completed before the article by Gwathmey and Karsner had been published. Publication was delayed to permit the clinical trial of the method under war and base hospital conditions. This has now progressed far enough to show that the method is effective, convenient and apparently safe, although the deep-rooted fear of chloroform may tend to prevent its general adoption.

I would, however, disclaim the intention of reintroducing the use of chloroform for general anesthesia. The present method presents a specific technic, using a fixed dose for a specific purpose, namely, for analgesia only.

In approaching the problem, I aimed to avoid the gastric administration, since the narcosis produced by this method would be likely to be more persistent than is necessary for the purpose. It was also doubtful to me whether an effective dose could be given without nausea or more serious danger. Gwathmey and Karsner, however, have apparently disposed of that question.

The use of morphin or scopolamin would be excluded for similar reasons: effective doses would be too dangerous and too prolonged; safe doses would be ineffective.

It seems, on *a priori* grounds, that a brief and harmless, but adequate, analgesia could best be secured by the inhalation method, which introduces and eliminates the narcotic rapidly. The chief problem, therefore, appeared to be the evolution of a method of administration adapted specifically to this purpose; namely, one giving a rather superficial anesthesia, with perfect safety and comfort to the patient, and the minimum of technical difficulty of administration.

This pointed to the employment of "self-inhalation." This carries with it an automatic safety device, in that the patient will be unable to continue the administration beyond the point at which consciousness is lost.

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* From the Pharmacological Laboratory of the Western Reserve University School of Medicine.

[1] Hirschman, L. J.: News of Base Hospitals in France, The Journal A. M. A., Dec. 1, 1917, p. 1882.

[2] Gwathmey, J. T., and Karsner, H. T.: General Analgesia by Oral Administration, The Journal A. M. A., April 6, 1918, p. 993.

A method was devised of testing this administration on man, with various anesthetics and mixtures: The presence and tolerance of pain was tested by touching the ordinary electrodes of a Harvard induction coil with the moistened tip of a finger, a strength of current being chosen such that the finger could not be kept on the electrodes normally by the exercise of an ordinary amount of will power.

The anesthetics were accurately measured in a conical graduate, taken up in a piece of cotton about the size of a lemon or larger, and held directly to the nostrils with the left hand of the subject. (Local irritation in all cases was negligible.) The subject then breathed deeply and quietly, occasionally testing the sensation.

Practically ideal results were secured by the use of 5 c.c. of chloroform, by this method. On several occasions the subject passed through the successive events of the ideal induction of anesthesia: the floating sensation, prickling, warmth, confusion, drowsiness; and in one case probably actual unconsciousness. In all the other administrations, the subject felt almost asleep, but gave answers to questions. The answers were appropriate, except when the effect was maximal, when they became incoherent.

The confusion began almost at once, and reached its maximum generally within five minutes. It began to lessen after about ten minutes. Then there remained a rather apathetic, drowsy state which disappeared only gradually: but inside of half an hour the subject was able to resume his ordinary occupations. There were no after-effects of any kind, except when the dosage was repeated in half an hour. In this case there remained some nausea and vertigo. The whole course of events is not in the least disagreeable, but rather seductive.

The analgesic phenomena are as follows: Within a few minutes after starting, about the time when the floating sensation occurs, the painful stimuli are very much less appreciated. The stimulation is quite distinctly felt, at first as a painful sensation; but the mind does not attach any importance to it, so that the finger can be kept on the electrodes without difficulty. As the narcosis deepens, the stimulation is felt as smarting rather than as pain. The analgesia reaches its maximum in about four or five minutes. At this time most of the chloroform has evaporated, and the sponge becomes almost dry; and from this time on the analgesia diminishes, but the tolerance to pain is still very definitely greater than normal for about half an hour.

The chloroform was more effective than any of the other anesthetics that were tried. This applies both to the analgesia and to the mental effect. It caused distinctly greater confusion, relaxation and sometimes at least a distinct pallor.

Next in efficiency to the chloroform came the Hewitt chloroform-ether mixture (chloroform, 2 parts; ether, 3 parts by volume). When 10 c.c. of this were inhaled, the effects approximated 5 c.c. of the chloroform fairly closely; but they were not quite so deep. Five c.c. of this mixture produced only a relatively slight effect. Ether itself in 10 c.c. quantity is too weak, although it produces slight analgesia quite rapidly. Billroth's A. C. E. mixture (alcohol, 1 part; chloroform, 2 parts, and ether, 3 parts), 5 c.c. is still weaker. I also tried the mixture stated as in use in the British hospitals for dressings, as described by Hirschman.[1] Ten c.c. of this acted scarcely stronger than the same amount of ether; perhaps a little more rapidly.

From these observations I would advise the clinical trial of the chloroform, in the manner that I have described, namely:

Five c.c. of chloroform are measured, soaked up in cotton, and given to the patient, to be applied by him in the palm of his hand directly to the nose, his hand excluding the air as much as possible. The patient should be directed to hold the sponge to the nose until the operation is completed. He should be instructed to breathe quietly and deeply. The dressing procedures can be begun between three and five minutes after starting the administration, and timed so as to be completed within twenty minutes.

The dose should be measured accurately, since any tendency to guesswork or leeway would eventually lead to fatalities. Indeed, it might be advantageous to dispense the chloroform for this purpose in single dose 5 c.c. ampules.

Repetition of the dose at the same sitting is to be avoided, but if absolutely necessary, the same dose may be given at the end of fifteen or twenty minutes, on a fresh piece of cotton. It is much safer, however, to abandon the use of chloroform in any cases in which a single dose is inadequate.

Inhalation from the hand was found much better than inhalation from a cup or similiar mask, because it brings the vapor much nearer to the nose.

It must be remembered that the chloroform used in this way does not usually produce unconsciousness; and so long as there is some consciousness the painful stimuli are felt. The object of the chloroform in that dosage is to produce a drowsy apathy, in which the patient in the first place feels the pain less, and in the second place is more indifferent whether he feels it or not.

The fact that the patient has his attention occupied by his doing something himself that lessens his pain is a rather desirable feature for distracting his attention from the proceedings of the dressers.

Clinical trial of the method has established its value for the purposes for which it was devised, namely, as a convenient and brief analgesia for dressings or minor surgical procedures. It has not yet been compared extensively with the Gwathmey-Karsner method in the same service. It is quite conceivable that the field of the two methods is somewhat distinct.

SUMMARY

The method proposed consists in producing analgesia by the inhalation of a definite quantity of chloroform (5 c.c.), measured as a single dose; and involving the use of the patient's hand as a tight inhaling mask. It has given good results, both experimentally and clinically.

Of the various anesthetics, chloroform is best adapted to this self-inhalation analgesia.

The fixed dose should be rigidly followed, or rather should not be exceeded. No attempt should be made to produce full anesthesia by this method.

Therapeutics

PROPHYLACTIC MEASURES TO BE OBSERVED IN MEASLES

An intelligent application of prophylactic measures in connection with measles demands that attention be paid not only to the possible transmission of the specific cause of measles from the infected individual to those about him, but also to the equally and sometimes more dangerous transmission of secondary infections to persons sick with or convalescent from measles from those who may or may not have the disease. The associated or secondary infection may be transmitted simultaneously with the measles virus, or may be transmitted from a second person to a person primarily infected with measles alone. Carriers probably play a larger part in the transmission of secondary infections than they do of measles proper.

PREVENTION OF THE SPREAD OF THE MEASLES VIRUS

Clinical and experimental evidence points to the presence of the specific cause of measles in the secretions of the respiratory tract very early in the disease, and prevention of infection of contacts can be hoped for only if the person coming down with measles is removed from his uninfected associates very early in the attack. This necessitates the early recognition of cases, which can be done by frequent examination of the mouths of those who have been or are suspected of having been exposed. The typical Koplik spots appear in the mouth from one to three days before the catarrhal symptoms develop and are readily detected by one familiar with them as minute, pearly white, pinpoint spots on the mucous membrane of the cheek, each being surrounded by a red halo. If persons are isolated at this time, the likelihood of their spreading the disease is much less than if they are undetected until the catarrhal symptoms have appeared.

ISOLATION

Measles patients should be isolated as soon as detected. If possible, each patient should be placed in a separate room. Because of the ease with which this disease is spread through minute moist droplets of infected mucus driven out into the surrounding air by coughing, sneezing, etc., measles patients should not be placed in a ward with persons suffering from other diseases. They should be placed in a ward by themselves, the individuals being separated from each other by the use of cubicles, the walls of which may be sheets suspended on wires. The latter precaution is directed toward the prevention of the transfer of secondary infections from one individual to others.

SECONDARY OR ASSOCIATED INFECTIONS

Infection of measles depresses the resistance of the body to a great variety of other infections, and the mortality associated with measles depends largely on the occurrence of secondary, complicating infections which accompany or follow the primary disease. The most common secondary infecting organisms associated with measles are tubercle bacilli, diphtheria bacilli, pneumococci and streptococci. Tubercle bacilli in a local, quiescent lesion are apt to take on fresh activity and to become widely disseminated during the course of and convalescence from measles. The mucous membranes in measles offer a peculiar vulnerability to diphtheria bacilli, and if this secondary infection occurs it is apt to exhibit unusual virulence.

Secondary infections by streptococci give rise to bronchopneumonia and empyema, and are responsible for most of the otitis media, endocarditis, pericarditis and pleuritis and other septic processes. The pneumococcus may cause lobar pneumonia.

Prevention of dissemination of these secondary infections from one patient to others is accomplished by isolation of individual patients in rooms or cubicles during the acute sickness. It is desirable to lessen further the chances for the spread of secondary infections by placing those patients with complications in separate wards from those occupied by simple cases. Patients with measles who are shown by bacteriologic examination to harbor hemolytic streptococci in the throat should be carefully separated from the other measles patients.

CONVALESCENCE

When patients are able to be out of bed and go about the ward and so come in close contact, the danger of transfer of measles has passed; but the danger of transfer of secondary infecting agents is often still present. The danger of spreading secondary infections during convalescence may be removed to a large extent by the wearing of proper gauze masks that cover the nose and mouth. The face mask not only prevents infections through droplets that pass directly from one patient to others, but it also prevents the escape of droplets that would fall to the floor or on other surfaces, and after drying might be distributed in dust. Unmasked convalescents should not be allowed to associate.

All eating utensils used by the sick should be sterilized by heat after each use.

ATTENDANTS

Those caring for measles patients should always employ aseptic technic, avoiding the carriage by any means of infectious materials from one patient to others. This necessitates great care in frequent cleaning of the hands with soap and water, the protection of the clothing by gowns, which are changed when soiled, and the covering of the hair by a suitable cap. For the personal protection of the attendants and in order that they may not become carriers of infectious agents, they should wear gauze masks when on duty.

DISINFECTION

While the measles virus is short lived outside the body and is readily killed by sunshine and abundant airing, this is not true to the same degree of the agents causing secondary infections. The latter bacteria, when dried in the secretions from mucous membranes, may retain their vitality and pathogenic properties for a considerable time. This renders necessary the sterilization of contaminated bedding and clothing. It also calls for washing of beds and cleaning of floors. If the latter are of such a nature as to be insusceptible of thorough cleaning by soap and water, they may be treated with an antiseptic solution at intervals.

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SATURDAY, AUGUST 24, 1918

"SPANISH INFLUENZA"

According to current reports, a pandemic of an acute influenza-like disease is passing over Europe, civilized and barbarian. Fortunately the outbreak in England and among the Allied troops on the continent is now on the wane. The disease has been called "Spanish influenza," presumably because it is believed to have started in Spain. In view of the likelihood that the pandemic will reach this country, all observations in regard to its manifestations and nature are of special interest. Thus far, however, most of the articles and notes regarding the disease have been of an ephemeral nature; the more elaborate and finished studies will come later.

The symptoms are described practically always in about the same terms: sudden onset with chills, severe headache, pains in the back and elsewhere, general malaise, flushed face, some soreness of the throat, and fever of from 101 to 104 F., with a rather slow pulse. Usually crisis has occurred after two or three days, with rapid and complete recovery. In many cases there has been a harsh cough with a scanty sputum; occasionally more severe bronchitis and even bronchopneumonia have developed; but among the young and healthy there seem to have been no serious consequences, and no definite statements are made as to the death rate, which in any event thus far has been very low. Gastro-intestinal disturbances have not been observed. Herpes labialis is mentioned as occurring occasionally. Enlargement of lymph nodes is recorded. At the end of the fever there has been found a rather slight leukocytosis, with a relative excess of small lymphocytes, preceded according to some by leukopenia with marked fall in eosinophils.

The observers on whose authority these statements are ventured do not agree as to the bacteriology of the disease. Little, Garofalo and Williams[1] of the Canadian Army Medical Corps did not find any influenza bacilli in smears or in cultures from the nose, throat and sputum. They found the predominating organism to be a small coccus with many of the characteristics of the streptococcus, but with rather feeble hemolytic power. Gotch and Wittingham,[2] on the other hand, found a gram-negative coccus, which they speak of as *Micrococcus catarrhalis,* in the nasopharyngeal swabs and sputum of all of fifty cases, sometimes almost pure; further, influenza bacilli in culture in 8 per cent. and influenza-like bacilli in smears in 62 per cent. of the cases, and also other bacteria, such as pneumococci and streptococci, in fewer instances. The experimental implantation of pure cultures of the *Micrococcus catarrhalis* on the pharyngeal mucous membrane was followed by the symptoms of influenza in two persons; hence Gotch and Wittingham regard this coccus as the cause of the disease, either acting alone or in conjunction with the influenza bacillus. As they give no details in regard to their experimental inoculation, it is quite impossible to form any judgment as to its value. Blood cultures have not yielded any definite results and so far no immunologic tests seem to have been made. In editorial comment, the *British Medical Journal*[3] states that the influenza bacillus has been found in many different places, especially in cases with bronchitis and pneumonia, and that the general opinion seems to be that the pandemic is due to the bacillus. This opinion is by no means unanimous, however, and the bacteriologic and other evidence at hand certainly does not warrant its acceptance. Much further work is required before we can feel sure that we understand the true nature and cause of this and similar pandemics.

The treatment remains symptomatic—rest in bed, free movements of the bowels, and light diet are the most important measures. No doubt the spread of the infection, whatever it is, would be limited considerably if the dangers of droplet infection were recognized more widely and guarded against.

INORGANIC ELEMENTS IN NUTRITION

There are twelve elements that occur in the human body in more than very minute quantities. By far the larger proportion make up what are commonly termed the mineral salts or inorganic components of the organism. Their presumable importance for the proper performance of our functions and the resulting welfare of the individual was recognized even in the days of Liebig. When it is recalled that under average conditions of diet and activity a healthy man may excrete daily from 20 to 30 grams (as much as an ounce) of inorganic salts, chiefly in the form of chlorids, sulphates and phosphates of sodium, potassium, magnesium and calcium, the relative magnitude of the ordinary "mineral metabolism" becomes evident.

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[1] Little, T. H.; Garofalo, C. J., and Williams, P. A.: The Absence of the Bacillus Influenzae in the Exudate from the Upper Air Passages in the Present Epidemic, Lancet, London, 1918, **2**, 34.

[2] Gotch, O. H., and Wittingham, H. E.: A Report on the "Influenza" Epidemic of 1918, Brit. Med. Jour., 1918, **2**, 82.

[3] The Influenzal Pandemic, Brit. Med. Jour., 1918, **2**, 39; The Pandemic of Influenza, ibid., 1918, **2**, 91.

After all, there is still great paucity of information on this aspect of nutrition. Osborne and Mendel[1] recently summarized the situation by stating that although there is almost a unanimity of opinion regarding the energy needs of the body under different circumstances of age and activity; although the current estimates of the minimum amount of protein required each day seem to be defined within reasonably narrow limits; and although the functions of fat and carbohydrate and the possibilities of their interchange are beginning to be understood, there is no adequate experimental basis to permit tenable statements regarding either the indispensability or the minimum requirement of any of the inorganic constituents of the dietary, with the possible exception of calcium and phosphorus. Statistics show enormous divergences between the mineral intakes of people in different regions; but these appear to be the fortuitous results of widely varying dietaries, including water (as is the comparative dissimilarity in the fat and carbohydrate content of the diets of peoples living, respectively, in a tropical or frigid climate—differences enforced by the different character of the available food supplies), rather than the expression of unlike metabolic needs.

Of course, this problem of the inorganic nutrients is as important for animal husbandry as for human nutrition; perhaps even more so in the case of domesticated animals deprived of a free choice of feeds and forced to live on selected rations. In this indirect way, again, the production of our own food supply is involved. Hart, Steenbock and Fuller[2] pointed not long ago to the prevailing idea that the mineral nutrients are contained in abundance in our feeding materials, and that therefore studies of their supply in feeds and the demand by farm animals are of little practical importance. It must be borne in mind, however, that grains in general are deficient in calcium. Agriculturists tell us that rations wholly made up of grains will supply to the growing animal an amount of calcium dangerously near a critical level of intake. Ruminants and horses consuming the usual roughages which contain more lime will ordinarily receive calcium enough for growth. But the Wisconsin experts[2] have announced that swine, growing or breeding, and confined wholly to grain rations, should receive an additional supply of calcium either as calcium carbonate, calcium phosphate, or legume hay. Like other workers in this field, they have pointed out that for continued and high milk production, with its extra drain of calcium, the supply may be dangerously low unless calcium is furnished in other forms.

A considerable volume of evidence from independent sources has placed beyond question the fact that the organism is not dependent on so-called natural sources for its supply of lime. There is no doubt that even growing organisms can utilize the element from such simple compounds as calcium carbonate or phosphate. Similarly, inorganic phosphates can serve as a complete source of phosphorus for the life cycle. This deserves repeated emphasis in the face of continued attempts to postulate indispensable nutrient virtues in special forms of "naturally occurring" phosphorus derivatives.[3] Furthermore, the limits of stature and form are fixed by heredity in large measure, so that, in the experience of Hart, Steenbock and Fuller, high calcium rations, as compared with low calcium rations, had no effect whatever during a single gestation period on the size or calcium content of the skeleton of the fetus. The skeleton is not increased in any dimension by a wide variation in the amount of calcium fed the mother.

Osborne and Mendel[1] likewise find that the appropriate supply of calcium, phosphorus and iron must be clearly kept in mind — a point that Sherman has repeatedly brought into public prominence in relation to human nutrition. In the case of other elements, sodium, potassium, magnesium and chlorin, they have observed in animal experiments that the minimum requirement is apparently much smaller than is currently believed. Even on diets rendered as free from these elements as ordinary care and selection will permit, Osborne and Mendel observed growth and long continued maintenance in health. This may seem surprising to those who look on a large modicum of common salt as a necessity. But it has long been known that the organism can endure a considerable reduction in the customary intake of sodium chlorid without any obvious untoward effects. There seems to be an extraordinary capacity for adjustment to varying quantities of this salt. When an abundance is offered in the diet, the elimination of chlorids through the kidneys, which are the only significant path for their excretion, is large; on a restricted chlorid intake the output promptly falls (except, perhaps, in certain cases of pathologic "salt retention"). In starvation, the output does not continue at a low level, as is the case with some of the other inorganic elements and nitrogenous wastes, but sinks almost to zero. The chlorid is husbanded in the body when its supply is limited.

What applies to chlorin is presumably true of some of the other elements, like sodium, potassium and magnesium. That these to some degree may be essential to the adjustments of neutrality regulation is indicated by the failure to grow when both sodium and potassium were practically excluded from the diet, whereas growth was nearly or quite normal when only one of these elements was missing. It is evident that a readjustment of the points of view in this connection will soon be necessary. Not only calories and protein, vitamins and roughage, but even the individual elements need specific consideration in nutrition. What next?

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[1] Osborne, T. B., and Mendel, L. B.: The Inorganic Elements in Nutrition, Jour. Biol. Chem., 1918, 34, 131.

[2] Hart, E. B.: Steenbock, H., and Fuller, J. G.: Calcium and Phosphorus Supply of Farm Feeds and Their Relation to the Animal's Requirements, Research Bull. 30, Wisconsin Agr. Expt. Sta., February, 1914.

[3] The Nutritive Value of Inorganic Phosphates, editorial, THE JOURNAL A. M. A., April 20, 1912, p. 1198; Organic and Inorganic Phosphorus Compounds, May 25, 1912, p. 1605; Organic Phosphorus Compounds, June 21, 1913, p. 1958.

THE MEASUREMENT OF MUSCULAR STRENGTH

Man power has always been an important factor in the work of the world; hence it is truly surprising that so little success has been attained in the measurement of human strength. Exercise is everywhere admitted to be an essential to good health and efficiency, yet science is far from having a suitable knowledge of the physiology of exercise. Despite the formulation of so-called strength tests, no scheme which will permit a forecast of the probable maximum strength of an individual and an analysis of observed departures from expectation has until recently existed.

In connection with a study of the treatment of infantile paralysis, Lovett and Martin[1] have developed a method of estimating muscular strength. This is not a simple matter. Martin[2] has pointed out the complications. Effective muscular strength, he says, by which is meant the power developed at the actual points at which strength is ordinarily exerted, depends on a number of factors. The muscles work for the most part in groups, and through action on levers. The effective strength, for example, of the calf muscles in such an action as rising on the toes has a complex mechanical basis, in comparison with the absolute muscular force of the isolated gastrocnemius. Moreover, in exhibitions of voluntary muscle power, the mechanism involved is a neuromuscular one in which the nervous part may have as much hand in determining the degree of activity as the purely muscular. Thus, so far as the actual use of the muscles is concerned, effective strength rather than intrinsic muscle power is of significance.

The collection of dependable data on this feature of the individual will serve toward the establishment of "quantitative standards of physiologic activities," surely a desirable end. Martin's extensive records of strength tests on children have shown that calculations of entire strength based on tests of only part of the muscle groups in the body are valid within a reasonable margin of error. In harmony with earlier findings of Kellogg on adults, relatively little difference in strength between the two sides of the body could be discerned. The data show a striking constancy in the relation of strength to body weight, when the sexes are considered separately. The fixed ratio of strength to weight is interpreted by Martin as signifying that the effective strength, as manifested in volitional efforts, depends, in the absence of specific exercise effects, on the constantly operative factor of weight, either of the entire body or of the part moved by a particular muscle group. The possession of means for obtaining information regarding the ideal distribution of strength among the muscle groups, to quote Martin, may enable us to interpret and perhaps to regulate departures from the ideal due to special exercises or to particular habits. On such a basis alone can the best prescription of exercise be based and measured.

"THE DAY'S FOOD IN WAR AND PEACE"

Not infrequently one hears, in reproach of modern science in America, that it fails to do its greatest service because the lessons it brings and the discoveries it has to offer are rarely presented in a language that the public at large can comprehend. It is doubtless true that the scientific disciplines of today have developed a special nomenclature that tends to puzzle all but the trained specialist. This progressive enrichment—perhaps some would regard it as an encumbrance—of our vocabulary has by no means, however, been confined to the domain of scientific knowledge. The advances in the arts and the introduction of new inventions have likewise compelled the mastery of new or unfamiliar words to describe innovations that are rapidly engrafting themselves on our daily lives. The telephone, the automobile, the aeroplane and harvest machinery, among dozens of other devices, have added new terms which soon become permanently established in word and thought.

As an illustration of the injustice of applying the indictment of incomprehensibility to the popular literature of science—not of pseudoscience or quackery—in general, we may point with some enthusiasm to a recent compilation issued by the U. S. Food Administration. Under the caption "The Day's Food in Peace and War" it has published a collection of "lessons" prepared at the request of the Woman's Committee of the Council of National Defense by experts of the Department of Agriculture, the Food Administration, and some of our well known specialists. The names speak for themselves: Herbert Hoover has written on food and the war; Graham Lusk, on food for a day; Alonzo Taylor, on wheat: why to save it—how to use it; E. V. McCollum, on conservation of fats and sugar; C. F. Langworthy, on meat and meat substitutes in war time; Lafayette B. Mendel, on milk and its products; Caroline Hunt, on how to use fruits and vegetables; Charles J. Brand, on the use of locally grown products and the development of a near-by food supply; Ruth Wheeler, on the children's food. In an introduction, Ida M. Tarbell well remarks: "To learn to do every common thing in life in the most scientific manner is one of our high duties at the present moment; but learning to meet our great need now will do much to help us as a nation in the future to do these common things in a finer and more comprehending way." If this war time booklet has not struck a timely pitch in driving home the modern lessons of nutrition, we fear that the popularization of science must be given up as a hopeless task for the present.

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[1] Lovett, R. W., and Martin, E. G.: Certain Aspects of Infantile Paralysis, The Journal A. M. A., March 4, 1916, p. 729; Am. Jour. Orthop. Surg., 1916, **14**, 415.

[2] Martin, E. G.: Muscular Strength and Muscular Symmetry in Human Beings, Am. Jour. Physiol., 1918, **46**, 67.

"The Day's Food" is not so elementary, despite its lucid style, that it will not repay examination by every physician who gives heed to the problems of diet and by every dietitian who aims to do full duty under present-day conditions. Here we find the essentials of a healtful and palatable diet clearly and succinctly indicated. "If Mother Goose had been born later in the history of the world," Graham Lusk writes, "she would undoubtedly have made a rhyme about calories, so that from early childhood we would have learned that our lives are dependent upon the fact that we burn up food in our bodies. . . . The laboring man, who does the hardest work, is the greatest consumer of food. He really needs to know the relative cost of the different fuels he eats, . . . but he has not been at all likely to get any information on the subject." In another lesson we are taught comprehendingly that wheat is just one of the cereals and there is no evidence that it is the most wholesome. Again, we are reminded that the principal reason for using sugar is that we like its taste and it makes other foods more palatable. It does not supply any necessary substance which cannot be secured equally well in other ways. The timely topic of meat, which though not actually necessary is a desirable part of the diet, is presented with forceful simplicity. The dietary virtues of milk, so often praised in The Journal, are reiterated in the lessons with cogent reasons for the advice given. An exceptionally sane chapter on feeding children defends the thesis that there is a real danger in attempting food conservation with them without such a knowledge of food as will show what changes may be safely made. There are no "frills" in the advice given. "A young child may be considered well fed if he has plenty of milk, bread, and other cereal food; an egg once a day or its equivalent in flesh foods; a small portion each of carefully prepared fruits and vegetables, with a small amount of sweet food after his appetite for other foods is satisfied. If there is too much or too little of any of these, his diet is one sided."

To make "The Day's Food" practical from the housewife's standpoint, illustrative tested recipes are introduced freely. For the inquisitive reader selected bibliographies are appended. The propagandist even finds a list of illustrative lantern slides to help him in his ventures. The inclusion of the entire monograph in current books on dietotherapy would be a valuable asset for their increased usefulness.

Current Comment

DOUBTFUL VALUE OF IRISH MOSS AS A FOOD

In a recent issue of The Journal,[1] we quoted an item from the government commerce reports which inadvertently gave the impression that carrageen, or Irish moss, if methodically collected and properly used, would help in augmenting the food supply of those nations where this sea weed, *Chondrus crispus,* is available in any abundance. The dried "moss," from which preparations termed vegetable gelatin and sea moss farina have been prepared and exploited commercially as human foods, contains a large proportion of a carbohydrate soluble in hot water and gelatinizing with ease on cooling. This has been demonstrated to consist in large measure of galactan, a polysaccharid yielding the sugar galactose, $C_6H_{12}O_6$, on hydrolysis with acids. In this respect it is analogous to the carbohydrate basis of the widely known agar agar prepared from a species of *Gelidium* growing abundantly in the warm waters of the Far East. To the chemist who analyzes these products they disclose the characteristics of a potential food because they readily yield a physiologically available sugar, just as the starch, or highly complex carbohydrate of the cereal grains, easily gives rise to the sugar glucose. But physiologic analysis shows that whereas the human organism produces enzymes or digestive ferments which can convert starch into sugars and thus prepare it for utilization in the organism, the galactans of Irish moss and agar agar are not digested in this way in the body. We produce no enzymes that convert the galactose-yielding complexes into the simpler fragments that can be assimilated; hence the carbohydrates of Irish moss, like those of agar agar, traverse the body unchanged in the alimentary tract.[2] Adequate digestion is a prerequisite for the suitability of a food in nutrition; and the carbohydrate in question fails to meet this requirement. The nitrogenous matter in the product has never been investigated sufficiently to justify any pronouncement in its favor. A somewhat similar error of judgment in respect to food values has lately become widespread in regard to the value of the Jerusalem artichoke as a war-time food. The cultivation of the plant has even been urged as a conservation measure.[3] This plant—topinambur—is rich in the carbohydrate inulin, a levulan easily converted into fruit sugar or levulose by hydrolysis with acids. However, the digestive juices do not appear to contain any enzyme capable of digesting inulin by converting it into an available sugar. The possibility of its physiologic use is limited to such conversion as the weak acidity of the gastric contents may effect. Hence inulin and products which furnish it in abundance have a limited food value so far as this carbohydrate is concerned.[4] As we have repeatedly pointed out, the chemist's analysis of a supposed food must nowadays be subjected to the critique of physiologic interpretation.

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[1] Irish Moss as a Food, The Journal A. M. A., Aug. 10, 1918, p. 424.

[2] Swartz, Mary D.: Nutrition Investigations on the Carbohydrates of Lichens, Algae and Related Substances, Tr. Connecticut Acad. Arts and Sciences, 1909, **16**, 247.

[3] Cockerell, T. A.: Artichokes as Food, Scient. Month., March, 1918; abstr., The Journal A. M. A., March 30, 1918, p. 909.

MEDICAL EDUCATION IN ILLINOIS

In 1906-7, when the first inspection of medical colleges was made by the Council on Medical Education, it was found that conditions in Illinois were worse than in any other state in the country. Of fourteen medical colleges then existing in Chicago, only four could be included among acceptable institutions; three were in the class needing certain definite improvements; while in seven the conditions were so bad that a complete reorganization was considered essential to make them acceptable. Even in 1910, following the investigation made for the Carnegie Foundation for the Advancement of Teaching, Mr. Flexner, in his report, referred to Illinois as the "plague spot of the country in respect to medical education." Under the publicity given to these conditions, five of the lower grade institutions in time became extinct and a sixth sought refuge by merging with another. One of the schools which closed—the National Medical University—did so only after the State Board of Health in 1909 had withdrawn recognition from it. Three years later an institution of similar type—the Chicago Hospital College of Medicine—was organized. While apparently having no direct connection with the National Medical University, it adopted many of the methods of that institution: It offered courses mainly during the afternoon and evening hours; in its advertising circulars it offered a "free European trip" to students who should meet certain conditions, and it made it appear that its interests were mainly in "the poor boy who wanted to get an education." At the same time, however, it charged fees much in excess of those charged by several of the state universities which were fully equipped in every way and which are recognized by all state licensing boards. From 1914 on, the Chicago Hospital College of Medicine has been reported as not recognized by the licensing boards of over 30 states—the number varying from 32 to 37 states—and finally in June, 1917, recognition was withdrawn from it by the Illinois State Board of Health. Since that time the Department of Registration and Education has made repeated inspections of the school, one of which was in company with representatives of the Surgeon-General of the Army, at whose request the investigation was made. Following this investigation, the college was not included by the Surgeon-General among "well recognized medical colleges," and the Illinois Department of Registration and Education refused to restore recognition. The rank and file of the medical profession of Illinois, and all citizens who believe in the enforcement of reasonable educational standards in the training of physicians, will rejoice in the better control of medical education and licensure that has been established in the state. Illinois shows promise of again assuming the leadership that it held in the days of John Rauch, in safeguarding the public against diploma mills and quack doctors.

LET THE READER KNOW

In the latest number of that excellent publication the *American Journal of Syphilis* there appears an article under the title "On the Use of American-Made Salvarsan." The sum and substance of the article is to the effect that the arsphenamin product sold "under the trademark name of salvarsan by the H. A. Metz Laboratories" is in all respects the equal of the German-made product. It is, in effect, a puff for Metz's arsphenamin. The article is by H. Sheridan Baketel, M.D. The reader is informed, under the caption, that Dr. Baketel is "Professor of Preventive Medicine and Hygiene and Lecturer on Genito-Urinary Diseases and Syphilis in the Long Island College Hospital; Genito-Urinary Surgeon to the House of Relief of the New York Hospital; Major, Medical Reserve Corps, United States Army." One thing, however, the reader is not told, and yet it is of prime importance if he is to appraise this article correctly, viz., that Dr. Baketel is, or was until quite recently if he is not still, in the employ of the H. A. Metz Laboratories (the present name of the Farbwerke-Hoechst Co.), and has for some time been the manager of the pharmaceutical department of that concern. Whether or not Dr. Baketel's conclusions are correct is beside the question. The point is that when an article appears in a scientific publication extolling the virtues of a proprietary product it is only common fairness to the readers of that publication that they should know that the article originates from those who have or have had economic as well as scientific interest in the preparation discussed. One other point, while irrelevant, is worthy of notice: Dr. Baketel says: "Salvarsan, on account of the complexity of its manufacture, has been exceedingly difficult to reproduce, but that this has been successfully accomplished is manifested by the production of this arsenical preparation under the trademark name of Salvarsan by the H. A. Metz Laboratories." This statement, especially when taken in connection with the claims made for the Metz product, might easily lead to the inference that the Metz concern is the only one that has successfully reproduced the drug. As a matter of fact, arsphenamin was made in this country by the Philadelphia Research Laboratories at a time when the Metz concern could not make it and when, indeed, that company had to buy it from them. It is hardly conceivable that Major Baketel does not know this.

Nutrition.—To the trained eye, the general appearance of the child may reveal much that is hidden to the mother. The posture, the tissue turgor, firm resistant subcutaneous tissues speak for health; flabby, nonresistant ones for malnutrition. The expressionless, tired looking children, with circles about the eyes, need to have their diets revised, or else have grave disturbances of health. Cyanosis of the cheeks, ears and finger tips may speak of cardiac or pulmonary disease. The bony changes in the skull of rachitic children are recognized at a glance. Disproportion between various skeletal members may reveal achondroplasia or other structural deformity.

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[4] Lewis, H. B.: The Value of Inulin as a Foodstuff, The Journal A. M. A., April 20, 1912, p. 1176.

Medical Mobilization and the War

Flight Surgeons Appointed

The United States government is now appointing a corps of surgeons and physical directors large enough to keep each training field and camp for flyers, both here and in France, with a proper organization. This medical branch of the air service does not alone select the flyer, but cares for him after he has been admitted to the service. Subject to the approval of the commanding officer, the flight surgeon recommends for the flyers such measures as periods of rest, recreation and temporary relief from duty as may seem advisable, attends sick calls of aviators, visits hospital cases and consults with the attending surgeon regarding them. The physical directors act as assistants to the flight surgeons and supervise such recreation and physical training of the flying men as is considered necessary.

Venereal Disease Control

The federal government will expend a million dollars, through the state boards of health, on venereal disease control during the fiscal year ending June 30, 1919. An officer of the U. S. P. H. S. will have charge of the work in each state in cooperation with the state health officer. The activities will be as follows: securing of reports of venereal infections; control of those infected, so as to prevent further spread of the diseases; establishment of free venereal clinics; suppression of vicious conditions that favor the spread of venereal infections, and carrying out of a systematic educational program for the general public as well as for those who are infected. The same act of Congress that made available this sum for expenditure gave authority for the establishment of a new division in the Public Health Service, to be called the division of venereal diseases, and also granted authority to the Public Health Service for the regulation of the interstate travel of venereally infected persons.

Committee Recommends Medical Examinations for Workers

A conference under the auspices of the national subcommittee on welfare work of the committee on labor of the Advisory Commission of the Council of National Defense has reported through Samuel Gompers to Secretary William B. Wilson of the Department of Labor that at its last meeting the committee recommended that medical examinations of workers be one of the functions of the government labor recruiting agency, recommending also the establishment of a central examining board to issue cards indicating the health of workers, and classifying them according to physical fitness. This proposed central examination board is to be composed of representatives of the workers, employers and the government, and the committee suggests that such men be placed on these boards as have the confidence of the workers in the locality in which they are appointed—especially should this be done in important cities like New York, Philadelphia, Chicago and Boston. It was also recommended that another board be appointed to hear appeals that might be made from the decisions of the local board, and that one member of each local board be a physician. This health examination by the government would not prevent the employer from making supplementary examinations and pursuing curative methods after placing men where they may be safely used; but it is the opinion that the official examinations made by the government would decrease about 50 per cent. of the grievances resulting when these examinations are conducted by employers. It is also believed by the conference that these examinations will aid in the detection of communicable diseases and will be of great benefit in placing subnormal employees in occupations fitted to their peculiar conditions.

Women Needed as Reconstruction Aides in Occupational Therapy

Trained women as teachers in occupational therapy are needed immediately for service in military hospitals, about 1,000 being desired for overseas service within the next few months. These reconstruction aides will teach hand crafts and other subjects to disabled soldiers in the military hospitals. The qualifications for this service are: age, between 25 and 40; citizens of the United States, or subjects of the allied countries; physical fitness; height not less than 60 inches nor more than 70; weight, not less than 100 nor more than 196 pounds; a thorough general education, at least the equivalent of graduation from a secondary school—college graduates preferred; an expert in some line. These aides will be divided into three classes: aides, head aides and supervisors, one head aide being responsible for the work of every ten aides, and a supervisor being appointed where there is need for more extended supervision. The salary of the aides will be $50 per month for service in the United States, and $60 for service abroad, the head aides receiving $15 additional. Transportation and $4 for other traveling expenses are also provided. For service at home a hospital uniform is required; for foreign service both hospital and street uniforms are needed. Women qualified for the service are requested to send applications at once to the Office of the Surgeon-General, Attention Division of Physical Reconstruction, Washington, D. C.

Conference of Local Board Examiners of New Mexico and Medical Officers of Camp Cody

In the operation of the Selective Service Law there have arisen, from time to time, various differences of opinion. This may be particularly true in respect to decisions involving medical questions. In order to forestall any contingency of this sort arising in New Mexico, Governor Lindsey, with his medical aide and the executive officer of the Selective Service Law, evolved the unique scheme of having a series of conferences between the examiners for the Local Boards and the medical officers of Camp Cody. Proposing this scheme to the division surgeon, Lieut.-Col. Coffin, he perceived the possibilities and ordered the arrangements made.

A feature of the camp is the "Developmental Battalion," numbering approximately 1,200 men. In this battalion are put the selected men who are borderline cases, mentally and physically. An attempt is here made to make these men fit for military service through the agency of mental and physical education.

It is stated that this is probably the first meeting of this nature which has taken place in the United States. The correlation of ideas as to when a man is or is not fit for military duty is of aid in preventing the return of men to their local boards as unfit.

The program which covered four days included: July 24, 1918—presentation of members to the division surgeon; sick rate charts shown, compared and discussed; inspection of casual camp infirmary, contact camp and base hospital; smoker. July 25, 1918—presentation of members to the commanding general; demonstration of field hospital and ambulances; inspection of development battalion, with presentation of cases; "Physical Disability in Relation to Mental Attitude Toward Military Service," Major E. S. Bullock; "Nervous and Mental Diseases, with Presentation of Cases of Hyperthyroidism," Major Horace Philips; "Psychologic Conditions," Lieutenant Moore; bayonet drill; conference. July 26, 1918—"Physical Diagnosis in Chest Conditions," Captain Thorburn; "Cardiovascular Conditions," Major Carter; "Review of 109th Sanitary Train," Lieutenant-Colonel Pederson, commanding; smoker, given by the 109th Sanitary Train. July 27, 1918—"Eye, Ear, Nose and Throat Conditions," Lieutenant Reeder; "Bones, Joints, Varicose Veins and Hernia," Lieutenant Husser; "Venereal Diseases and Skin," Captain Bowman.

PLANS FOR PHYSICAL RECONSTRUCTION OF DISABLED SOLDIERS IN THE GENERAL MILITARY HOSPITALS

Institutions Where Rehabilitation Work Will Be Carried On—Treatment to Be Employed and Vocations Taught

The following statement is authorized by the War Department:

The Surgeon-General, with the approval of the General Staff, announces the completion of plans for the physical reconstruction of disabled soldiers in the general military hospitals. These plans are formulated with a view to close cooperation with the War Department committee on education and special service in the work of restoring men to full or limited military service, and with the Federal Board for Vocational Education, which is authorized by the law to provide vocational training for disabled men after their discharge from the Army and Navy.

The records of 516 cases treated in four hospitals show 134 men able to return to full military duty, 210 fit for limited service, 172 who are eligible for discharge. In the last group 12 are classed as helpless or institutional cases, 121 are able to return to their former occupations, and 39 will need further training to fit them for earning a livelihood. These figures show the division of responsibility in the work of reconstruction.

MOST PRESSING NEED

The task of fitting men for further military service is at present the most pressing need because wherever an able-bodied man behind the lines can be replaced by one less fit physically, but vocationally capable, a soldier is gained for active duty. The reconstruction work in the hospitals, therefore, will emphasize technical training in all lines capable of adaptation to the physical limitations of disabled men and in which employment will act as a therapeutic agent. When play and work and study will help a man to get well, this kind of medicine will be prescribed to the patient. If the work he does leads to further service in the Army or to better prospects in civilian life so much the better.

HOSPITALS DESIGNATED

The Surgeon-General has designated the following general military hospitals for the work of physical reconstruction:

Walter Reed General Hospital, Washington, D. C.
General Hospital No. 2, Fort McHenry, Md.
General Hospital No. 3, Colonia, N. J.
General Hospital No. 6, Fort McPherson, Ga.
General Hospital No. 7, Roland Park, Baltimore (for the blind).
General Hospital No. 8, Otisville, N. Y.
General Hospital No. 4, Fort Porter, N. Y.
General Hospital No. 9, Lakewood, N. J.
General Hospital No. 11, Cape May, N. J.
General Hospital No. 16, New Haven, Conn.
General Hospital No. 17, Markleton, Pa.
Letterman General Hospital, San Francisco.
United States Army Hospital, Fort Des Moines, Iowa.
Plattsburg Barracks Hospital, Plattsburg Barracks, N. Y.
General Hospital, Fort Bayard, N. M.

POLICY TO BE FOLLOWED

The policy to be followed in these hospitals, as announced by the Surgeon-General, is that hereafter no member of the military service disabled in line of duty, even though not expected to return to duty, will be discharged from service until he shall have attained complete recovery or as complete recovery as may be expected when the nature of his disability is considered. In furtherance of this policy, physical reconstruction is defined as complete mental and surgical treatment carried to the point of maximum functional restoration, both mental and physical. To secure this result all methods recognized by modern medicine as conducive to cure will be utilized. In other words, not only the ordinary means of medicine and surgery, including all specialties, will be utilized, but also physical measures such as are employed under physiotherapy, including hydro, electro, and mechanotherapy, active exercises, indoor and outdoor games and passive exercise in the form of massage. Provision in the form of adequate buildings and equipment for physiotherapy have been adopted in each of the hospitals.

FUNCTIONAL RESTORATION FINAL AIM

Modern medical treatment does not end with physical cure. Functional restoration is the final aim of the modern physicians and surgeons. It is conceded that the physical rehabilitation of disabled men is peculiarly dependent on their mental attitude. The more serious the disability, the greater the danger of mental depression, and an indisposition to respond to medical and surgical treatment. The educational work should begin, therefore, at the moment when the man has arrived at the stage where he begins to worry about his future, whether in this country or overseas. The first problem is to divert his attention by simple recreation, through reading, pictures, games, handiwork occupations, and the like, with a view to securing a genuine interest in the attainment of some worthy end—the end most certain to hold his attention and to claim his best efforts in his future vocation. Hence, by gradual steps he may be induced to supplement his previous vocational experience by academic, scientific, or technical instruction, or to choose a new vocation and begin preparation for it if such a course is necessary.

NEED OF "CHEER-UP" WORK

The need of "cheer-up" work in the hospitals extends to all who are mentally capable of planning for their own future. This means a relatively large proportion of the entire number. The beginning is made at the bedside with handicrafts of various kinds grouped under the term "occupational therapy." When the man is able to leave the ward and can be benefited physically by technical training, he has the opportunity of working at specific trades either in the curative work shop, in specially provided classrooms, or out of doors.

The teachers for this work have been secured from the convalescent disabled soldiers who are already skilled in their vocations and from the enlisted personnel of the Army secured by transfer or by induction of registrants disqualified for general military service, but qualified for special limited service. These instructors work under the direction of educational officers chosen for their professional standing in civil life and commissioned in the Sanitary Corps of the Medical Department. The General Staff has just authorized commissions for 119 educationel officers for this purpose.

THREE CLASSES OF DISABLED SOLDIERS

From the military standpoint disabled soldiers may be placed in three general classes:

(*a*) Those who can be restored to full duty.
(*b*) Those who can be fitted for limited service.
(*c*) Those disabled to the extent of unfitting them for further military service.

It is the announced policy of the Surgeon-General that patients of the first class (*a*) should have, when circumstances warrant it, the benefit of therapeutic treatment through play, work and study, as may be prescribed by medical officers, in order that their morale may be stiffened, their special skills improved, their future usefulness increased, and their recovery hastened.

Patients of the second class (*b*) should have, whenever conditions permit and the medical officers approve, such specific training—physical and vocational—as will in the judgment of the educational officers best fit such patients for limited service of a particular kind. At present patients are being trained in general hospitals for limited service as general and vocational teachers, typists, printers, tailors, cobblers, harness makers, welders, motor mechanicians, painters, machine workers, woodworkers, bookkeepers, statisticians, telegraphers, photographers, telephone operators, cooks, storekeepers, electricians, etc.

LIST TO BE EXTENDED

The list will be extended with the advice and cooperation of the committee on education and special service of the War Department to meet other needs as they arise. In connection with the large general hospitals there is abundant opportunity for practice in many trades and occupations. At Fort McPherson, for example, practical experience can be gained in twenty different trades. Moreover, there is immediately adjacent to the hospital a large quartermaster's mechanical repair shop, covering all phases of mechanical repair and construction to which men can be assigned for limited service or to gain experience.

Patients of the third class (*c*) should be encouraged in every possible way to accept the benefit accorded them for vocational training by the Federal Board for Vocational Education. To this end they should have while in the hospital such physical training and general education as will best promote their physical reconstruction and at the same time contribute most to their vocational training. Patients who do not elect or who are not eligible to continue their education under the federal board should receive such training as the medical and educational officers deem best in each individual case.

CORRECTIONS

In the "Honor Roll" published June 1, the following officers of the Medical Reserve Corps on duty in the Philippines, and giving Manila, P. I., as their home addresses, were not included: Capts. A. C. GARTON, B. L. BURDETTE, J. A. JOHNSTON, C. R. JOHNSON and P. M. LOWELL.

The order of Capt. GEORGE L. PEIRCE which appeared in The Journal announced that he had been ordered to duty from Maryland. This should have been Bower, W. Va.

In The Journal of August 17, under the heading "Orders to Officers of the Medical Reserve Corps," appears the name of Lieut B. B. SMITH of Philadelphia ordered from Fort Oglethorpe to Newport News for duty. The home address of Lieutenant Smith is Erie, Pa., instead of Philadelphia.

In The Journal of August 10, under the heading "Commissions Accepted, Medical Reserve Corps, U. S. Army," appears the name S. W. COFFMAN of Broadview, Ill. We are informed that Dr. Coffman's home is at Maywood, Ill.

COMMISSIONS ACCEPTED, MEDICAL RESERVE CORPS, U. S. ARMY

Previous lists published in THE JOURNAL, June 1, 22, and 29, July 13, 20 and 27, August 3, 10 and 17.

ALABAMA

Anniston—Brothers, T. J.
Birmingham—Dedman, J. E.
Kent, J. T.
Wadley—Denney, T. H.

ARKANSAS

DeQueen—Hopkinson, R. L.
Hamburg—Simpson, J. C.
Leslie—Hollabaugh, C. B.
Little Rock—Staples, D.
Round Pond—Powell, C. V.
Stuttgart—Swindler, E. B.

CALIFORNIA

Fresno—O'Hannesian, F.
Los Angeles—Frary, B. S.
Granger, A. S.
Holgate, C. E.
Lettice, F. E.
McCombs, V. J.
McKenna, W. J.
Mitchell, H. B.
Monrovia—Pottenger, J. E.
Parlier—McKenney, J. A.
Pomona—Smith, R. T.
Ripon—Gould, N. B.
San Francisco—Boskewitz, G. H.
Graham, L.
Tulare—Fuller, R. N.
Vallejo—Dempsey, R. D.

COLORADO

Boulder—Spencer, F. R.
Pueblo—Hoag, D. E.
Silverton—Condit, E. G.

CONNECTICUT

Bethel—Moore, H. F.
Bridgeport—Watts, J. F.
Hartford—Deming, C. D.
Lyme—Devitt, E. K.
New Haven—Falsey, E. T.
Waterford—Gosselin, G. A.

DELAWARE

Mullsboro—Dodd, H. H.
Selbyville—James, G. E.

DISTRICT OF COLUMBIA

Washington—Carr, W. B.
Guerra, A. L.
Warden, H. F. W.

FLORIDA

Jacksonville—Dobbs, C. H.
Heggie, N. M.
Miami—Brunner, E. C.
Tampa—Marney, C. R.
West Palm Beach—Cooley, R. O.

GEORGIA

Alamo—Yawn, B. W.
Americus—Grubbs, L. F.
Atlanta—Giuffrida, F. J.
Berlin—Edmondson, H. T.
Brunswick—Wilson, T. B.
Butler—Montgomery, R. C.
College Park—Henley, J. T.
Colquitt—Baughn, E. B.
Columbus—Blanchard, M.
Macon—Respess, H.
Ray City—Anderson, G. M.
Savannah—Barrow, C.
Bishop, E. L.
Bray, S. E.
Dancy, W. R.
Iseman, E.
Johnson, G. H.
Lee, L.
Sylvester—Tinton, W. C.
[illegible] C. H.
[illegible], W. M.

IDAHO

Coeur D'Alene—Dwyer, J. C.

ILLINOIS

Blue Island—McCowan, D. C.
Breese—Warren, H. B.
Burlington—Roach, D. C.
Chicago—Casserly, E. A.
Challenger, C. J.
Gammage, A. E.
Graf, J. P.
Hagerty, T. W.
Herrman, C. B.
Jackson, H.
Manning, L.
Mosher, G. W.
Naughton, M. T.
Olkon, D. M.
Plice, W. A.
Roche, N. J.
Sharp, C. E.
Chicago—Trudel, J. L.
Wolf, S.
Wolman, N.
Wood, F. M.
Crete—Blim, S. P.
East Moline—Love, H. J.
Ochs, L. M.
Griggsville—Loveless, H. C.
Jacksonville—Norris, F. A.
Lanark—Wales, A. H.
[illegible] W.
[illegible] I.
[illegible]
Ohio—O'Malley, J. M.
Oregon—Cottlow, B. A.
Peoria—Hinckle, W. A.
Miller, S. M.
Simpson, O. W.
Rockford—Ackemann, H. W.
Rushville—Munson, H. O.
Springfield—Morrison, H. T.
Tiskilwa—Hess, H. R.
Horner, C. F.

INDIANA

Bloomfield—Cook, T. R.
Bloomington—Whetsell, L. E.
Bluffton—Metts, F. A.
Cannelton—Schriefer, E. E.
Colfax—Botts, H. H.
Denver—Waymire, E. S.
Evansville—Frick, H. C.
Hobart—MacKey, D.
Kokomo—Bennett, E. N.
Linnsburg—Riley, F. H.
Morristown—Patten, V. C.
New Middletown—Smoots, S. A.
South Bend—Gordon, J. M.
St. Bernice—Green, S. I.

IOWA

Amana—Hermann, C. H.
Boneparte—Whitely, J. H.
Conrad—Gould, G.
Gilmore City—Herrick, R. C.
Glenwood—Lacey, T. B.
Grinnell—Buck, S. C.
Hartley—Hand, W. C.
Lake City—McVay, M. J.
Marengo—Manahan, C. A.
Sioux City—Magoun, C. E.
[illegible] A.
[illegible] J. T.
Yale—Thornburg, W. V.

KANSAS

Baxter Springs—Scates, H. R.
Emporia—Williams, J. O.
Independence—[illegible] C. W.
[illegible] V. H.
[illegible] O.
Topeka—Vansa[illegible]s, L.
Wellington—Downing, R. H.

KENTUCKY

Adairville—Morgan, E. C.
Covington—Adams, F. T.
Louisville—Fugate, I. T.
Jenkins, W. A.
Stephens, O. T.
Littrell—Webb, J. R.
Sandy Hook—Hunter, C. R. H.
Simmons—Lake, W.

LOUISIANA

Baton Rouge—Hyde, A. S. J.
Carson—Callihan, P. W.
Villa Rica—Malone, W. H.

MAINE

Freeport—Lewis, W. J.
Limestone—Damon, A. H.
Livermore Falls—Heald, H. M.
Madison—Vose, S. N.
Sangerville—Freeman, F. H.
Swans Island—Fuller, A. J.
Wayne—Chenery, F. L., Jr.

MARYLAND

Baltimore—Darby, W. A.
Dehoff, G. W.
Lentz, C. S.
[illegible]
[illegible] J. L.
[illegible] J. C.
[illegible] City—Parker, A. A.

MASSACHUSETTS

Boston—Codman, T. A.
Grant, W. H.
Hyde, H. V.
Wheeldon, T. F.
Brookline—Barnes, H. A.
Saeger, E. T.
Brookton—Lupien, H. J.
Cohasset—Hinchliffe, F.
East Weymouth—Libby, J. H.
Fall River—Dedrick, A. C.
Holyoke—Cox, S. C.
Lynch, H. E.
Malden—Gay, F. W.
North Abington—Wheatley, F. G.
West Stockbridge—Hull, E. F.
Winthrop—Grainger, E. J.
Worcester—Ljungberg, D. G.

MICHIGAN

Ann Arbor—Langford, T. S.
Detroit—Brooks, C. D.
King, J. E.
Pratt, J. P.
Dowagiac—Herkimer, G. R.
Grosse Pointe—Griswold, D. M.

MINNESOTA

Beardsley—Weir, J. D.
Le Roy—Warren, C. L.
Minneapolis—Cavanor, F. T.
Mt. Iron—Parsons, F. L.
St. Paul—Kunce, F. E.
Windom—Ravn, B.

MISSISSIPPI

Alligater—Nichols, J. L.
Jackson—Rembert, G. W. F.
Meridian—Denson, E. G.
Murphy—Ferrell, L. T.
Sunflower—Higdon, B. H.

MISSOURI

Clarksdale—Elliott, J. R.
Columbia—Meanwell, W. E.
Craig—Ottman, J. C.
Ebenezer—Potter, A. E.
Greenridge—Hite, H. A.
Kansas City—Lux, P.
Major, R. H.
Miller, L. B.
Malden—VanCleve, J. D.
Rockport—Chamberlin, O. M. C.
St. Joseph—Forgrave, L. P.
Spencer, F. H.
St. Louis—Ambrose, O. A.
Creveling, H. C.
Froehlich, E. J.
Gundlach, A.
Harris, I. J.
Harris, R. C.
Herchenroeder, L. C.
Jansen, R. W.
Mellies, G. A.
Mulach, A. A.
Rogers, C. H.
Sullivan, F. J.
Young, A. O.
Waverly—Johnston, E. L.
Windsor—Jennings, R. J.

MONTANA

Butte—Biddle, G.
Roundup—Lewis, G. A.

NEBRASKA

Kearney—Robinson, L. S. B.
Talmage—Thompson, H. H.
Wausa—Newmann, E. V.

NEVADA

Aurora—Riley, W. H.

NEW HAMPSHIRE

Amherst—Pettengill, F. G.

NEW JERSEY

Lakewood—Thompson, O. C.
Mindham—McMurtire, W. A.
Newark—Hurff, J. W.
Orange—Gore, M. E.
Trenton—Costill, H. B.

NEW MEXICO

Albuquerque—Jameson, C. H.
Santa Fe—Hedding, B. E.

NEW YORK

Broad Channel—Both, J. L.
Brooklyn—Perrotta, N.
Phillips, W. G., Jr.
Hoosick Falls—Wilson, G. T.
Hudson—Mambert, J. W.
New York—Bloom, D. M.
Dinnerstein, M.
Franklin, J. W.
Kingery, L. B.
Kirby, G. H.
Levy, E. C.
Maddox, A. S.
Markofsky, D. M.
Miller, S. W.
O'Malley, T. S.
Ryder, M.
Sautter, C. M.
Stauffer, F. L.
Weller, W.
Poughkeepsie—Newman, T. W.
Rochester—Gibson, W. J.
Staten Island—Skidmore, E. L.
Warsaw—Thomson, W. R.
Warwick—Vosburgh, T. J.

NORTH CAROLINA

Allen—Smith, W. P.
Carthage—Kelly, A. P.
Durham—King, M. N.
Ryland—Spencer, J. R.
Winston Salem—Davis, T. W.

NORTH DAKOTA

Bismarck—Dunlap, L. G.
Crystal—Scott, R. A.
Grand Forks—Dean, A.

OHIO

Cincinnati—Fogel, E. I.
Cleveland—Dinsmore, R. S.
Drach, A. E.
Follansbee, R. G.
Manley, R. M.
Sobal, S. A.
Columbus—Beam, E. C.
Dayton—Werner, E. R.
Hudson—Miller, G. A.
Lakewood—Saddler, J. L.
Marble Cliff—Miller, S. H.
Massillon—Zintsmaster, L. B.
Nelsonville—Dew, C. G.
North Baltimore—Cavett, C. S.
Oberlin—Colegrove, P. C.
Paulding—Fauster, J. U.
Scott Town—Mayberry, I. W.
Springfield—Jones, C. L.
St. Paris—Hamsher, J. F.
Sylvania—Halbert, V. B.
Tiffin—Gosling, J. A.
Toledo—Lehman, F. J. J.
Louy, C.
Wright, J. F.
Woodville—Trumbull, H. N.
Xenia—Finley, R. K.

OKLAHOMA

Coalgate—Sadler, F. E.
Enid—Swank, J. R.
Frederick—Mitchell, L. A.
Henryetta—Boswell, H. D.
Minco—Little, J. S.
Oklahoma City—Maxwell, J. H.
Wells, W. W.
Tulsa—Trainer, W. J.
Vion—Morris, C. H.

OREGON

Albany—Riggs, G. E.
Portland—Ellis, R. H.
Parker, H. C.

PENNSYLVANIA

Avondale—Magraw, G. T.
Bellfonte—Huff, S. M.
Burgettstown—McKee, G. L.
Cassville—Koshland, J. G.
Clearfield—Rowles, L. C.
Darlington—Watterson, R. W.
Doylestown—Fox, C. D.
East Brady—Kelsea, W. H.
Minersville—Monaghan, J. M.
Philadelphia—Beck, A. F.
Loewenburg, S. A.
Stalberg, I. Z.
Pittsburgh—Baker, T.
Mackrell, J. S.
Steinsville—Fetherolf, W. J.
[illegible] S.
[illegible] H. C.
[illegible], S.

RHODE ISLAND

Providence—Baker, N. C.

SOUTH CAROLINA

Abbeville—Hill, J. C.
Saluda—Boozer, H. T.

SOUTH DAKOTA

Lead—Clough, F. E.
Jackson, A. S.
Markel, I. J.
Northville—Bates, W. A.
Sioux Falls—Culver, C. F.
Donahoe, S. A.

TENNESSEE

Arlington—Harvell, W. T.
Knoxville—Skaggs, H. R.
Lynnville—Denham, R. H.
Memphis—Andrews, J. L.
Baird, W. O.
Walker, O. P.
Nashville—DeWitt, P.
Parrish, H. B.
Simpson, J. W.
Spain, W. C.

TEXAS

Benton—Hodde, F. H.
Childress—Jernigan, J. H.
College Station—[illegible] O.
[illegible] H.
Houston—Alexander, J. C.
Grimes, G. D.
Marlin—Sewall, F. B.

McGregor—Blailock, H. F.
Mineral Wells—McConnell, L. H.
Munday—Hammond, J. E.
Petrolia—Russell, I. D.
Quannah—Frizzell, T. D.
San Antonio—Pagenstecher, G. A.
Sherman—McElhannon, A. M.
Temple—Lehman, C. F., Jr.
Parker, W. L.
Throckmorton—King, J. E.

UTAH

Bingham Canyon — Bruckheimer, R. M.
Hageman, P. S.
Smith, U. H.
Salt Lake City—Kirtley, H. P.

VERMONT

Hardwick—Crane, E. M.
Warren—Warren, A. B.

VIRGINIA

Richmond—Blanton, H. W.

WASHINGTON

Lamont—Preucel, J. E.
Seattle—Lazelle, H. G.
Spokane—Burger, T. D.
Rosenthal, S. E.
Wellpinit—Wise, A. H.
Yakima—Loudon, J. P.

WEST VIRGINIA

New Martinsville—Schmied, J. D.

WISCONSIN

Bayley—Morrissey, F. B.
Hayward—Pake, S. G.
Kaukauna—Flanagan, G. J.
La Crosse—Flynn, R. E.
Marshfield—Potter, R. P.
Vedder, J. B.
Milwaukee—Burback, T. H.
Viola—Parke, G.

WYOMING

Basin—Harris, C. E.
Riverton—Tonkin, A. B.

ORDERS TO OFFICERS OF THE MEDICAL CORPS, U. S. ARMY

Alabama

To Camp Joseph E. Johnston, Jacksonville, Fla., for duty, Capt. F. H. McCONNICO, Montgomery.

To Camp Travis, Fort Sam Houston, Texas, as sanitary inspector, from Fort Oglethorpe, Capt. I. W. PATTON, Madison. Base hospital, Lieut. D. H. SPARKS, Birmingham.

To Fort Oglethorpe for instruction, Lieut. JOSEPH R. CHISOLM, Marion Junction.

To New York City, Bellevue Hospital, for instruction, and on completion *to his proper station,* from Camp Wadsworth, Capt. W. L. THORNTON, Birmingham.

Resignation of Lieut. R. K. BUFORD, Huntsville, accepted.

Alaska

To Camp Lewis, American Lake, Wash., base hospital, Lieut. W. J. PIGG, Petersburg.

Arizona

To Camp Fremont, Palo Alto, Calif., base hospital, from Fort Rosecrans, Lieut. W. O. SWEEK, Phoenix.

To Camp Logan, Houston, Texas, as sanitary inspector, from Southern Department, Major H. T. SOUTHWORTH, Prescott.

To Camp Travis, Fort Sam Houston, Texas, base hospital, Capt. V. A. SMELKER, Nogales.

To Mineola, L. I., N. Y., Hazelhurst Field, for instruction, from Lake Charles, Capt. E. W. ADAMSON, Douglas.

Arkansas

To Austin, Texas, State University, for duty, from Camp Kelly, Lieut. B. GWALTNEY, Haskell.

To Camp Beauregard, Alexandria, La., base hospital, Capt. F. R. DORENTO, Fort Smith.

To Camp MacArthur, Waco, Texas, base hospital, Capt. O. J. T. JOHNSTON, Batesville.

To Fort Ontario, N. Y., base hospital, from Fort McPherson, Lieut. F. S. WATSON, Amity.

To Fort Riley for instruction, Lieuts. J. F. HALBROOK, Conway; T. J. POOL, Danville; C. E. KITCHENS, De Queen; W. M. MAJORS, Walcott.

To Hampton, Va., Langley Field, for duty, Lieut. W. H. DeCLARK, McGehee.

To New Haven, Conn., Yale Army Laboratory School, for duty, from Camp Greene, Lieut. L. H. CORNWALL; from Camp Pike, Lieut. C. M. HYLAND.

To Washington, D. C., for instruction, from Fort Oglethorpe, Lieut. E. B. BUCHANNAN, Texarkana.

California

To Ann Arbor, Mich., State Psychopathic Hospital, for intensive training, from Camp Sevier, Lieut. J. DE ANGILO, Stanford University.

To Camp Bowie, Fort Worth, Texas, base hospital, Capt. J. L.
LOHSE, Oakland. For duty, from Camp Kearney, Lieut. E. W. SEA-
FORTH, San Francisco; from Fort Oglethorpe, Lieut. C. WILSON,
Los Angeles.

To Camp Cody, Deming, N. M., base hospital, from San Francisco,
Capt. T. O. BURGER, San Diego for duty, Lieut. S. N. ATKINS,
Venice.

To Camp Grant, Rockford, Ill., as assistant to camp surgeon, from
Camp Fremont, Major S. R. MORRIS.

To Camp Fremont, Palo Alto, Calif., base hospital, Capts. H. W.
MURRAY, Pasadena; F. C. GALEHOUSE, Taft; *Lieuts.* H. G. WAT-
TERS, Watsonville; N. H. SALTER, Williams. For temporary duty,
from Camp Lewis, Lieut. O. M. HARRAH, La Manda Park.

To Camp Kearney, Linda Vista, Calif., for duty, *from* Fort Riley,
Lieut. C. D. FANTON, Riverside.

To Camp Lewis, American Lake, Wash., base hospital, from Camp
Kearney, Capt. H. K. BERKLEY, Santa Monica; from San Francisco,
Capt. T. J. ORBISON, Los Angeles.

To Fort Oglethorpe for instruction, Capt. J. C. COPELAND, Los
Angeles, Lieut. M. D. BAKER, San Jose.

To Fort Ontario, N. Y., base hospital, from Camp Cody, Capt. L. L.
RIGGIN, Pasadena.

To Fort Riley for instruction, Capts. A. G. HAYGOOD, Downey;
E. A. JONES, Los Angeles; J. E. CLARK, Oakland; R. T. SMITH,
Pomona; Lieut. E. V. FALK, *Modesto.*

To Fort Sam Houston, Texas, for duty, from Fort Riley, Lieut. C. C.
ROSS, San Francisco.

To Fort Sill, Okla., base hospital, from Camp Pike, Major H. C.
LOOS, San Diego.

To Hoboken, N. J., base hospital, from Camp MacArthur, Capt. E. DOZIER, Redding.

To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieut. M. B. WOLFF, San Francisco.

To Canal Zone, for duty, from Fort McDowell, Major R. L. I. SMITH, Pasadena.

To report by wire to the commanding general, Western Department, for assignment to duty, Capts. R. R. ROOT, Corona. H. M. DALE, B. S. FRARY, Lieut. A. E. SMITH, Los Angeles.

To San Francisco, Letterman General Hospital, for temporary duty, Capt. A. F. HIGGINS, Sacramento.

To the inactive list, from Western Department, Lieut. F. C. E. MATTISON, Pasadena.

The following order has been revoked: *To Camp Bowie,* Fort Worth, Texas, from Camp Kearney, Capt. R. HAGAN, Los Angeles.

Canal Zone

To Camp Beauregard, Alexandria, La., base hospital, from Camp Pike, Major W. M. JAMES, Ancon.

To Camp Dix, Wrightstown, N. J., for duty, from Newport News, Major S. J. TAYLOR, Cristobal.

Colorado

To Camp Cody, Deming, N. M., base hospital, Capt. H. B. KILLOUGH, Pueblo. For duty, Lieut. W. H. ACKER, Delta.

To Camp Lee, Petersburg, Va., as camp surgeon, from Fort Slocum, Col. C. Y. BROWNLEE.

To Camp Lewis, American Lake, Wash., base hospital, Capt. W. F. BROWNELL, Fort Collins; Lieut. I. J. CLARK, Denver.

To Camp Zachary Taylor, Louisville, Ky., base hospital, Lieut. J. A. PHILPOTT, Denver.

To Fort Riley for instruction, Lieut. E. G. CONDIT, Silverton.

To New Haven, Conn., for duty, Capt. S. SIMON, Denver.

Connecticut

To Azalea, N. C., for duty, from New Haven, Capt. J. B. GRIGGS, Hartford.

To Camp Devens, Ayer, Mass., for duty, Lieut. G. A. GOSSELIN, Waterbury.

To Camp Hancock, Augusta, Ga., base hospital, Capt. C. O. PURINTON, West Hartford.

To Camp Lewis, American Lake, Wash., base hospital, from Fort Oglethorpe, Lieut. J. I. WOISARD, Bristol.

To Fort Oglethorpe for instruction, Lieut. L. H. FROST, Plainville, from duty as private, Lieut. A. B. GROSS, Hartford.

To Fort Ontario, N. Y., base hospital, from Camp Upton, Lieut. E. J. WHALEN, Hartford.

To Hoboken, N. J., base hospital, from Camp Upton, Lieut. L. HOLMES, Manchester. For duty, from Army Medical School, Capt. A. K. OSHANSKY, New Haven.

To New York, Bellevue Hospital, for instruction, and on completion *to his proper station,* from Camp Meade, Lieut. J. F. SAGARINO, Hartford. Neurological Institute, for instruction, Lieut. C. D. DEMING, Hartford.

To Plattsburg Barracks, N. Y., for duty, from Camp Dix, Capt. S. L. GOODRICH, Waterbury.

To Tobyhanna, Pa., for duty, Lieut. E. K. DEVITT, Lyme.

To Walter Reed General Hospital, Takoma Park, D. C., for temporary duty, Lieut. J. F. WATTS, Bridgeport.

Delaware

To Camp Abraham Eustis, Lee Hall, Va., for duty, Lieut. G. E. JAMES, Selbyville.

To Fort Sill, Okla., base hospital, from Camp MacArthur, Lieut. J. H. MULLIN, Wilmington.

To Hoboken, N. J., for duty, from Cape May, Capt. E. H. LENDERMAN, Wilmington.

District of Columbia

To Camp Devens, Ayer, Mass., as assistant to camp surgeon, from Southern Department, Major A. B. JONES.

To Camp Jackson, Columbia, S. C., base hospital, and on completion *to Camp Hancock,* Augusta, Ga., base hospital, Major F. LEECH, Washington.

To Camp Sheridan, Montgomery, Ala., for duty, from Fort Oglethorpe, Capt. S. MOSKOWITZ, Washington.

To Camp Zachary Taylor, Louisville, Ky., base hospital, from Washington, Capt. S. C. JOHNSON, Washington.

To Fort Oglethorpe for instruction, from Walter Reed General Hospital, Lieut. W. J. C. THOMAS, Washington.

To Newport News, Va., for duty, from Camp Gordon, Capt. G. S. SAFFOLD, Washington.

To Washington, D. C., for conference and on completion *to Fort McPherson, Ga.,* for duty, from Biltmore, Major J. F. MITCHELL, Washington.

Florida

To Camp Greene, Charlotte, N. C., for duty, Lieut. C. H. DOBBS, Jacksonville.

To Camp Shelby, Hattiesburg, Miss., base hospital, Capt. G. R. HOLDEN, Jacksonville.

To Camp Wadsworth, Spartanburg, S. C., base hospital, from Camp Beauregard, Capt. E. G. BIRGE, Jacksonville.

To Fort Oglethorpe for instruction, Lieut. M. C. KAYTON, Wauchula.

To Plattsburgh Barracks, N. Y., for duty, from *Fort Oglethorpe,* Capt. E. K. JAUDON, Miami.

To Waynesville, N. C., for duty, from New Haven, Capt. F. J. BOWEN, Jacksonville.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. L. W. GLATZAU, Delard.

Georgia

To Camp A. A. Humphreys, Accotink, Va., for temporary duty, Lieut. G. K. TOUCHTON, Douglas.

To Camp Crane, Allentown, Pa., for temporary duty, from Camp Dix, Lieut. C. M. MASHBURN, Atlanta; H. M. BARKER, Flintstone.

To Camp Greene, Charlotte, N. C., for duty, Capts. L. LEE, Savannah; A. J. MOONEY, Statesboro; Lieuts. M. BLANCHARD, Columbus; C. MOORE, Lindale.

To Camp Hancock, Augusta, Ga., base hospital, Lieut. A. S. M. COLEMAN, Douglas.

To Camp Jackson, Columbia, S. C., base hospital, from Camp Meade, Lieut. J. F. BURKHALTER, Morven.

To Camp Joseph E. Johnston, Jacksonville, Fla., for duty, Capts. R. P. GRIFFITH, Columbus; D. E. MORGAN, La Grange; Lieuts. C. L. ELLIS, Kingston; O. DANIEL, Macon; J. L. LEE, Pinehurst; J. L. TYRE, Screven; W. R. THOMAS, Waycross.

To Camp MacArthur, Waco, Texas, for temporary duty, Lieut. S. E. BRAY, Savannah.

To Camp McClellan, Anniston, Ala., as camp surgeon, from Camp Wheeler, Lieut.-Col. L. C. DUNCAN.

To Camp Meade, Admiral, Md., for duty, Lieuts. P. CHEEK, Clemont; J. L. CHANDLER, Rome.

To Camp Sherman, Chillicothe, O., as camp surgeon, from Fort Oglethorpe, Major H. B. McINTYRE.

To Camp Wadsworth, Spartanburg, S. C., for duty, Capts. N. J. COKER, Canton; E. L. BAKER, Columbus; E. C. CRUMMEY, Jesup.

To Camp Wheeler, Macon, Ga., base hospital, Capt. W. B. SUMMERALL, Atlanta.

To Fort Oglethorpe for instruction, Capt. H. W. HARRIS, Ashburn; Lieuts. B. W. YAWN, Alamo; H. S. GEHRKEN, Augusta; R. E. BOWMAN, Brownwood; G. H. ELARBEE, Daisy; A. C. DORMINY, Hoboken.

To Fort Sam Houston, Texas, base hospital, Lieut. S. P. WISE, Plains.

To Fort Slocum, N. Y., for duty, from Fort Oglethorpe, Lieut.-Col. E. M. TALBOTT.

To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieuts. T. H. CLARK, Douglas; O. Y. MALONE, Fayetteville.

To New York City, Neurological Institute, for instruction, Lieut. L. W. WILLIAMS, Savannah.

To Walter Reed General Hospital, Takoma Park, D. C., for temporary duty, Lieut. C. REED, Hilton.

The following order has been revoked: *To Camp Wadsworth*, Spartanburg, S. C., for duty, from Southeastern Department, Lieut. C. J. HIND, Atlanta.

Idaho

To Camp Custer, Battle Creek, Mich., base hospital, Capt. J. A. DODD, Moscow.

To Camp Dodge, Des Moines, Iowa, for temporary duty, Lieut. W. P. SCROGGS, Eden.

To Camp Sheridan, Montgomery, Ala., for duty, from Fort Riley, Lieut. V. G. LOGAN, Rockland.

Illinois

To Azalea, N. C., for duty, from New Haven, Lieuts. O. COHEN, Joliet; J. M. MORAN, Oak Forest; from Walter Reed General Hospital, Major W. A. N. DORLAND, Chicago.

To Camp Beauregard, Alexandria, La., as assistant to division surgeon, from Camp Sheridan, Capt. J. E. WALTON, Medora.

To Camp Crane, Allentown, Pa., for temporary duty, from Des Moines, Lieut. J. O. BAILIFF, Chicago; from Fort Riley, Capt. V. M. JARED, Chicago.

To Camp Custer, Battle Creek, Mich., for duty, Lieuts. B. O. SWINEHART, Cooksville; E. D. SMITH, Springfield.

To Camp Dodge, Des Moines, Iowa, as assistant to division surgeon, from Fort Sill, Major J. G. MAXON, Harvard. As orthopedic surgeon, from Chicago, Lieut. W. C. BLIM, Crete. Base Hospital, Capt. J. A. GREEN, Rockford. For temporary duty, Lieut. L. V. MALONE, Chicago.

To Camp Gordon, Atlanta, Ga., base hospital, Capt. J. M. WASHBURN, Chicago.

To Camp Grant, Rockford, Ill., base hospital, Capt. F. J. EBERSPACHER, Pana; Lieut. P. S. SCHOLES, Canton.

To Camp Greene, Charlotte, N. C., for duty, Lieut, H. C. LOVELASS, Griggsville.

To Camp Hancock, Augusta, Ga., base hospital, Capt. L. J. HUGHES, Elgin; Lieut. J. F. DAVIS, Chicago; from Camp Jackson, Lieut. N. C. STAM, Chicago.

To Camp Joseph E. Johnston, Jacksonville, Fla., for duty, from Camp Greene, Lieut. L. H. HARNER, Chicago.

To Camp Lewis, American Lake, Wash., base hospital, from Fort Oglethorpe, Lieut. W. F. BUCKNER, Watseka.

To Camp Logan, Houston, Texas, base hospital, Capt. F. G. DYAS, Chicago.

To Camp McClelland, Anniston, Ala., base hospital, Capt. A. H. RUBOWITZ, Chicago; Lieut. J. W. OVITZ, Genoa.

To Camp Meade, Admiral, Md., for duty, Capts. H. J. LOVE, East Moline; H. E. BECK, Moline; Lieuts. C. C. MOE, Berwyn; F. DENSON, Bloomington; R. J. ROCHE, Chicago; W. L. CROUGH, Fairview; O. P. HAMILTON, Forrest.

To Camp Pike, Little Rock, Ark., base hospital, Capt. C. W. COMPTON, Springfield.

To Camp Shelby, Hattiesburg, Miss., base hospital, from Camp Jackson, Lieut. W. J. BUTLER, Chicago.

To Camp Sheridan, Montgomery, Ala., base hospital, Capt. B. J. LACHNER, Rock Island.

To Camp Sherman, Chillicothe, Ohio, base hospital, Capt. B. R. Beers, Chicago.

To Camp Travis, Fort Sam Houston, Texas, base hospital, from Corpus Christi, Lieut. T. G. ALLEN, Chicago.

To Camp Wadsworth, Spartanburg, S. C., base hospital, from Fort Sheridan, Capt. J. W. VANDERSLICE, Oak Park. For duty, Capt. J. W. ELLIS, Chicago; from Camp Meade, Capt. E. M. RUNDQUIST, Rockford.

To Camp Wheeler, Macon, Ga., base hospital, Lieut. J. H. EDGECOMB, Ottawa; from Camp A. A. Humphreys, Capt. J. K. POLLOCK, Elgin.

To Camp Zachary Taylor, Louisville, Ky., base hospital, Lieut. T. W. HAGERTY, Chicago.

To Charleston, S. C., for duty, Capt. S. A. SPRINGWATER, Chicago; Lieut. W. R. BLACKBURN, Virginia.

To Chicago for duty, Capt. F. A. JEFFERSON, Chicago.

To Corpus Christi, Texas, for duty, from Camp Jackson, Major B. M. LINNELL, Chicago.

To Fort McHenry, Md., for temporary duty, from Camp Jackson, Lieut. M. DOKTORSKY, Chicago.

To Fort McPherson, Ga., for duty, from Camp Wadsworth, Lieut. H. W. CARLIN, Chicago.

To Fort Monroe, Va., for temporary duty, Capt. P. L. TAYLOR, Springfield.

To Fort Moultrie, S. C., for duty, Capt. M. T. HAUGHTON, Chicago.

To Fort Oglethorpe for instruction, Capts. J. E. STANTON, Chicago; F. J. MAHA, Dundee; C. J. PRICE, Mount Morris; H. E. PINTLER, Peoria; Lieuts. H. R. STRUTHERS, Ashkum; SOL. S. GOLDEN, H. HOFMANN, L. J. JACOBSON, G. E. PFEIFFER, O. W. REST, Chicago; J. N. BUCHANAN, Freeport; N. B. WILLCOOKSON, Illiopolis; F. V. CHMELIK, Joliet; S. M. McLAUGHLIN, Minier; from Camp Dodge, Major C. D. WILKINS, Chicago.

To Fort Ontario, N. Y., base hospital, from Camp Upton, Lieut. F. W. FIEDLER, Butchtown; from Fort McPherson, Capt. A. D. WEST, Moline.

To Fort Riley for instruction, Lieuts. H. D. EATON, Harvard; R. C. VERNOR, Nashville; J. R. BIERLY, G. J. MAUTZ, Springfield; C. D. HASKELL, Williamsville.

To Fort Sam Houston, Texas, for duty, from Fort Riley, Lieut. F. D. WALK, Chicago.

To Fort Screven, Ga., for duty, Capt. W. SCHOENNESHOEFER, Lostant.

To Fort Sill, Okla., base hospital, from Camp Bowie, Lieut. T. B. KELLY, Du Quoin. For temporary duty, from Camp Dodge, Major E. C. G. FRANING, Galesburg.

To Governors Island, N. Y., for duty, Lieut. B. A. COTTLOW, Oregon.

To Mineola, L. I., N. Y., for instruction, Capt. G. W. MOSHER, Chicago.

To New Haven, Conn., for duty, Capt. H. C. MILLER, Chicago; Lieut. E. LEVY, Winfield. *To Yale Army Laboratory School*, for instruction, Lieut. E. A. CASSERLY, Chicago.

To New York, Bellevue Hospital, for instruction, and on completion *to Camp Devens*, Ayer, Mass., base hospital, Lieut. P. H. FURNO, Chicago. On completion *to Camp Dix*, Wrightstown, N. J., base hospital, Lieut. J. T. MEYER, Chicago. On completion *to Camp Meade*, Admiral, Md., base hospital, Capt. C. E. POWELL, Polo. *To Neurological Institute* for instruction, Lieut. F. M. SYLVESTER, Oak Park.

To report by wire to the commanding general, Eastern Department, for assignment to duty, from Lakewood, Capt. T. J. O'MALLEY, Chicago.

To Washington, D. C., for duty in the Surgeon-General's Office, Lieut. D. C. SUTTON, Chicago.

To Wichita Falls, Texas, for duty, from Fort Worth, Capt. R. H. KUHNS, Chicago.

To Williamsbridge, N. Y., for observation and treatment, from Camp Greene, Capt. T. S. CROWE, Chicago.

The following orders have been revoked: *To Camp Bowie*, Fort Worth, Texas, for duty, from Western Department, Lieut. G. A. TANKERSLEY, Owaneco. *To Fort Oglethorpe* for instruction, from Camp Gordon, Lieut. P. E. GREENLEAF, Bloomington.

Indiana

To Ann Arbor, Mich., Psycopathic Hospital, for intensive training, Lieut. E. K. HOLT, Indianapolis.

To Camp A. A. Humphreys, Accotink, Va., base hospital, Lieut. E. P. KING, Gary.

To Camp Crane, Allentown, Pa., for temporary duty, from Camp Custer, Capt. H. H. THOMPSON, Noblesville, from Camp Wadsworth, Major H. M. HOSMER, Gary.

To Camp Dodge, Des Moines, Iowa, base hospital, Lieut. E. N. BENNETT, Kokomo.

To Camp Greene, Charlotte, N. C., for duty, Capt. T. R. COOK, Bloomfield; Lieut. D. MACKEY, Hobart; from duty as a private, Lieut. J. M. TITUS, Hebron.

To Camp Meade, Admiral, Md., for duty, Lieut. W. D. INLOW, Manila. *To examine the command* for nervous and mental diseases, Lieut. B. D. PAUL, Brookston.

To Camp Sevier, Greenville, S. C., base hospital, Capt. O. E. FINK, Terre Haute.

To Camp Shelby, Hattiesburg, Miss., base hospital, Lieut. M. S. HARMON, LaPorte.

To Camp Sherman, Chillicothe, Ohio, base hospital, Lieut. E. B. RUSCHLI, Lafayette.

To Camp Wadsworth, Spartanburg, S. C., base hospital, from Fort Slocum, Major H. M. HOSMER, Gary.

To Camp Zachary Taylor, Louisville, Ky., base hospital, Lieuts. J. W. CARMACK, F. C. DENNY, Indianapolis.

To Charleston, S. C., for duty, Capt. E. R. SISSON, Greenfield.

To Fort Monroe, Va., for duty, from Camp Upton, Capt. G. W. ANGLIN, Warsaw; from Fort McPherson, Lieut. W. F. JOHNSON, Indianapolis.

To Fort Oglethorpe for instruction, Lieuts. A. C. PEBWORTH, Indianapolis, W. F. GOSSLER, Marion; E. E. PARKER, Oxford; O. A. BYERS, Petersburg; W. McQUEEN, Quincy.

To Fort Ontario, N. Y., base hospital, from Camp Sheridan, Lieut. F. L. REESE, Bicknell.

To Fort Riley for instruction, Capts. L. ROGERS, French Lick; C. A. DRESCH, Mishawaka; Lieuts. V. G. BLACK, Fishers; E. O. NEWLIN, Fontanet; O. D. LUDWIG, F. L. TRUITT, Indianapolis; R. E. DAVIS, Madison; G. L. GIBBONS, Mitchell; H. H. ISAACS, Tangier.

To Fort Sam Houston, Texas, for duty, from Fort Riley, Lieut. C. S. BLACK, Warren.

To Fort Sill, Okla., for duty, Capt. A. FUNK, New Albany.

To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieut. F. A. KIMBLE, Anderson.

To report to the commanding general, Central Department, for assignment to duty, Capt. J. L. McBRIDE, Zanesville.

To Walter Reed General Hospital, Takoma Park, D. C., for temporary duty, Lieut. H. ALDRICH, Fairmont.

The following order has been revoked: *To Fort Oglethorpe* for instruction, Capt. S. C. NORRIS, Anderson.

Iowa

To Camp Bowie, Fort Worth, Texas, base hospital, Lieut. W. C. HAND, Hartley.

To Camp Custer, Battle Creek, Mich., base hospital, Capt. M. B. GALLOWAY, Webster City; Lieut. A. L. DARCKE, Des Moines. For duty, Lieut. D. B. SOLLIS, Bedford.

To Camp Dodge, Des Moines, Iowa, base hospital, Capt. M. A. HEALY, Boone, Lieuts. J. G. CLAPSADDLE, Burt; M. C. BRUSH, Shenandoah.

To Camp Grant, Rockford, Ill., base hospital, Capt. A. D. McKINLEY, Des Moines.

To Camp Jackson, Columbia, S. C., base hospital, Capt. G. F. HARKNESS, Davenport; from Tuscaloosa, Lieut. G. H. STEELE, Belmond.

To Camp Meade, Admiral, Md., for duty, Lieut. W. J. LEAMAN, Leaman Place.

To Fort Oglethorpe for instruction, Lieut. W. J. FENTON, Mystic; W. J. FOSTER, Wellman.

To Fort Riley for instruction, Capt. T. LUCAST, Forest City; Lieuts. C. L. BASKIN, Chariton; D. O. KING, Eldora; W. E. LYON, Garden Grove; R. HOUSTON, Nevada; C. H. BARTRUFF, Reinbeck; JUDSON W. MYERS, Sheldon; A. A. HOFFMANN, Waterloo.

To Fort Sam Houston, Texas, for duty, from Fort Riley, Capt. R. HUIZENGA, Rock Valley, Lieut. R. C. HERRICK, Gilmore City.

To Fort Sill, Okla., base hospital, from Camp Bowie, Capt. W. H. FOX, Waucoma.

To New Haven, Conn., for duty, Capt. S. C. BUCK, Grinnell. *To Yale Army Laboratory School* for instruction, Lieut. W. H. HOMBACH, Remsen.

To report by wire to the commanding general, Central Department, for assignment to duty, Capt. E. T. JAYNES, Waterloo.

Kansas

To Camp Beauregard, Alexandria, La., base hospital, Lieut. A. J. O'LEARY, Burr Oak.

To Camp Bowie, Fort Worth, Texas, base hospital, Lieut. E. M. IRELAND, Coldwater.

To Camp Custer, Battle Creek, Mich., base hospital, Capt. A. J. LIND, Kansas City.

To Camp McClelland, Anniston, Ala., for duty, Lieut. R. H. DOWNING, Wellington.

To Camp Pike, Little Rock, Ark., base hospital, Capt. L. S. COPLAN, Wellington; from Rock Island, Capt. R. C. HENDERSON, Erie.

To Fort Riley for instruction, Capts. C. W. DE MOTT, Independence; E. B. HAYNES, Madison; Lieuts. A. W. LOVENE, Burdick; R. M. TINNEY, Norton; B. D. THOMAS, Shawnee. For temporary duty, Capt. J. A. SETTLE, Reading.

To Fort Sam Houston, Texas, base hospital, Lieut. R. S. C. FISHER, Wichita.

To New Haven, Conn., for duty, Lieut. C. F. ENSIGN, Lawrence.

Honorably discharged, Lieut. E. V. ADAMS, Topeka.

The following orders have been revoked: *To Camp Crane,* Allentown, Pa., base hospital, from Fort Riley, Capt. H. ATKINS, Pratt. *To Rochester, Minn.,* and on completion *to his proper station,* from Camp Zachary Taylor, Capt. G. M. GAFFORD, Kinsley.

Kentucky

To Camp Abraham Eustis, Lee Hall, Va., for temporary duty, Major B. F. VAN METER, Lexington.

To Camp Meade, Admiral, Md., for duty, Capt. M. N. BOWMAN, Lexington.

To Fort McHenry, Md., for temporary duty, from Camp Jackson, Capt. L. S. Robinson, Madisonville.

To Fort Oglethorpe for instruction, Lieuts. E. J. NESTLEY, Covington; A. D. ECHERT, Newport; C. R. HUNTER, Sandy Hook.

To Fort Porter, N. Y., for duty, from Fort Ontario, Capt. M. H. YEAMAN, Henderson.

To Hampton, Va., Langley Field, for duty, Capt. S. D. WETHERBY, Middletown.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion to Camp Sheridan, Montgomery, Ala., base hospital, Lieut. W. I. HUME, Louisville.

Louisiana

To Camp Joseph E. Johnston, Jacksonville, Fla., for duty, from Fort Oglethorpe, Lieut. J. B. STAMPER, Caspiana.

To Camp Lee, Petersburg, Va., base hospital, Lieut. T. LATIOLAIS, Breaux Bridge.

To Camp Wheeler, Macon, Ga., for duty, Lieut. A. S. J. HYDE, Baton Rouge.

To Fort Oglethorpe for instruction, Lieut. G. J. DE REYNA, New Orleans; from Camp Beauregard, Lieut. W. T. McNEESE, Angie.

To Fort Sill, Okla., base hospital, from Camp Bowie, Capt. R. M. BLAKELY, New Orleans.

To Newport News, Va., as orthopedic surgeon, from Fort Oglethorpe, Lieut. R. C. VOSS, New Orleans.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to his proper station,* from Walter Reed General Hospital, Capt. J. G. MARTIN, Lake Charles.

Honorably discharged on account of physical disability existing prior to entrance into the service. Major R. M. VAN WART, New Orleans.

Maine

To Camp Devens, Ayer, Mass., base hospital, Lieut. J. E. POULIN, Augusta. For duty, Lieut. C. J. TAYLOR, Bangor.

To Fort Oglethorpe for instruction, Lieut. H. E. ANDERSON, Acton.

To New York, Bellevue Hospital, for instruction and on completion *to his proper station,* from Camp Jackson, Capt. H. M. CHAPMAN, Bangor.

Maryland

To Camp Jackson, Columbia, S. C., *to examine* the command for nervous and mental diseases, from Baltimore, Lieut. L. B. HOHMAN, Baltimore.

To Camp Meade, Admiral, Md., for duty, Lieuts. G. W. DE HOFF, Baltimore; G. A. LEWIS, Roundup. With the board examining the troops for cardiovascular diseases, from Camp Lee, Capt. A. D. ATKINSON, Baltimore.

To Fort Meyer, Va., for duty, Capt. J. C. HOLDSWORTH, Midland.

To Fort Oglethorpe for instruction, Lieuts. L. P. HOLMES, H. H. JOHNSON, P. G. WEISMAN, Baltimore.

To New York, Bellevue Hospital, for instruction, and on completion *to his proper station,* from Camp Jackson, Lieut. J. T. NELSON, Baltimore. From Camp Meade, Lieuts. C. L. LUCKETT, H. H. WARNER, Baltimore.

The following orders have been revoked: *To Fort Oglethorpe* for instruction, Lieut. M. H. TIBBETTS, Baltimore. *To Mineola, L. I., N. Y.,* for instruction, Lieut. F. LINTHICUM, Baltimore.

Massachusetts

To Azalea, N. C., for duty, from New Haven, Lieuts. C. W. CLARK, Newtonville; E. D. PILLSBURY, Somerville.

To Boston, Mass., Franklin Union Institute, to make physical examinations and give medical attention to drafted men, Capt. J. H. LAWRENCE, Brockton.

To Camp Beauregard, Alexandria, La., base hospital, Lieut. F. HINCHLIFFE, Cohasset.

To Camp Crane, Allentown, Pa., for temporary duty, Capt. F. R. SIMS, Melrose; from Camp Devens, Lieut. E. A. ROGERS, Boston; from Camp Gordon, Lieut. J. A. GOULD, Westboro; from Camp Jackson, Capt. A. H. PIERCE, Leominster; from Camp Sheridan, Lieut. J. A. KEENAN, Boston.

To Camp Devens, Ayer, Mass., base hospital, Lieuts. G. A. BUCKLEY, Brockton; F. L. LOVELAND, Newton; J. J. PAGLIA, Worcester. For duty, Lieut. E. P. HAND, Holyoke.

To Camp Dix, Wrightstown. N. J., as camp surgeon, from Camp Devens, *Lieut.-Col. H. R. BEERY.*

To Camp Gordon, Atlanta, Ga., with the board examining the command for nervous and mental diseases, Lieut. E. H. WISWALL, Wellesley.

To Camp Greene, Charlotte, N. C., for duty, Lieut. C. G. MILES, Brockton.

To Camp Meade, Admiral, Md., for duty, Capt. C. MALONE, Jamaica Plain; Lieuts. C. P. WARREN, Amesbury; T. S. DONOVAN, Lawrence.

To Camp Wadsworth, Spartanburg, S. C., for duty, Lieut. W. M. St. GEORGE, Holyoke.

To Fort Oglethorpe for instruction, Lieuts. HAROLD C. TOOKER, Boston; S. B. ANNIS, Natick; S. F. WILDE, New Bedford; L. O. ASHTON, St. Lawrence; D. B. COLEMAN, Wellesley; from duty as private, Lieut. A. C. MORAN, Fall River.

To Fort Ontario, N. Y., base hospital, from Camp Devens, Lieut. E. A. MESERVE, Boston.

To Governors Island, N. Y., for duty, Capt. D. H. CHASE, Cambridge.

To Lakewood, N. J., for temporary duty, Lieuts. C. STURGIS, Boston; R. C. JONES, Fitchburg.

To New York, Bellevue Hospital, for instruction, and on completion *to his proper station,* from Camp Wadsworth, Lieut. J. J. DONOVAN, Boston; from Camp Zachary Taylor, Capt. W. E. DENNING, Worcester.

To Panama Canal Department for duty, from Camp Raritan, Major J. B. PASCOE, Revere.

To report by wire to the commanding general, Southeastern Department, for assignment to duty, from Camp Hancock, Lieut. P. C. DENNETT, Alston.

To Rockefeller Institute for instruction and on completion *to his proper station,* from Camp Meade, Capt. H. E. MAYNARD, Worcester. For instruction in the treatment of infected wounds, and on completion *to Camp Greene,* Charlotte, N. C., base hospital, Capt. F. A. WEBSTER, Boston.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. G. W. SHIRK, Hatfield.

The following order has been revoked: *To Camp Wadsworth,* Spartanburg, S. C., for duty, Capt. A. K. YOOSUF, Worcester.

Michigan

To Azalea, N. C., for duty, from New Haven, Capt. J. A. ELLIOTT, Battle Creek.

To Camp Crane, Allentown, Pa., base hospital, from Camp Sevier, Lieut. H. A. BECK, Detroit.

To Camp Custer, Battle Creek, Mich., base hospital, Capt. R. C. BUCK, St. Johns; Lieut. H. HENDERSON, Detroit. For duty, Capts. C. D. BROOKS, Detroit; C. H. MURPHY, Lansing; Lieut. C. CAREY, Detroit. *To examine the command* for nervous and mental diseases, Lieut. R. A. MORTER, Kalamazoo.

To Camp Dodge, Des Moines, Iowa, for temporary duty, from Camp Beauregard, Lieut. L. B. KINGERY, Ann Arbor.

To Camp Meade, Admiral, Md., base hospital, Lieut. J. K. BURNS, Jr., Detroit. For duty, Capt. T. H. E. BELL, *Reading;* Lieut. W. O. MERRILL, Detroit. With the board examining the troops for tuberculosis, Lieut. R. H. JUERS, Highland Park.

To Fort Oglethorpe, base hospital, from Camp A. A. Humphreys, Major F. H. NEWBERRY, Detroit. For instruction, Capts. H. J. BURRELL, Benton Harbor; D. P. MAYHEW, Detroit; O. G. JOHNSON, Fostoria; Lieuts. C. F. DuBOIS, Detroit; E. A. SCHILZ, Grand Lodge; A. S. EGAN, Muskegon; L. E. GIBSON, Oxford.

To Fort Ontario, N. Y., for temporary duty, Lieut. H. A. REYE, Detroit.

To Fort Riley for instruction, Lieut. JOHN G. RULISON, Lansing.

To Governors Island, N. Y., for duty, Capt. G. H. HERKIMER, Dowagiac.

To Lakewood, N. J., for temporary duty, from Camp Jackson, Lieut. E. M. CHAUNCEY, Albion.

To New York, Bellevue Hospital, for instruction and on completion *to Camp Dix,* Wrightstown, N. J., base hospital, Lieut. F. L. HONHART, Detroit. On completion *to Camp Meade,* Admiral, Md., base hospital, Capt. R. K. YOUNG, Detroit. On completion *to his proper station,* from Camp Wadsworth, Lieut. S. C. BLACK, Rochester.

To report to the commanding general Central Department, for assignment to duty, Capt. H. S. GARNER, Detroit. *To report to the commanding general,* Southeastern Department, for assignment to duty, from Camp Hancock, Lieut. J. RHINES, Laurium.

To Walter Reed General Hospital, Takoma Park, D. C., for duty, from Fort Oglethorpe, Capt. A. E. OWEN, Lansing.

To Washington, D. C., for duty, from Camp Custer, Capt. O. H. CLARK, Kalamazoo.

Minnesota

To Belleville, Ill., Scott Field, for duty, Capt. G. T. AYRES, Ely.

To Camp Custer, Battle Creek, Mich., base hospital, Capts. M. W. SMITH, Red Wing; W. E. RICHARDSON, Slayton; Lieut. L. W. ANDERSON, Atwater.

To Camp Dodge, Des Moines, Ia., base hospital, Lieut. T. GRATZEK St. Paul.

To Camp Gordon, Atlanta, Ga., base hospital, Lieut. W. J. KREMER, Minneapolis.

To Camp Grant, Rockford, Ill., base hospital, Capts. S. C. SCHMITT, Minneapolis; M. M. GHENT, St. Paul; Lieut. J. A. DAHL, Minneapolis.

To Camp Greene, Charlotte, N. C., for duty, Lieuts. A. E. AMUDSEN, Oslo; R. B. J. SCHOCH, St. Paul.

To Camp Sevier, Greenville, S. C., base hospital, Capt. H. L. ULRICH, Minneapolis.

To Camp Shelby, Hattiesburg, Miss., for duty, Capt. A. E. BENJAMIN, Minneapolis; Lieut. P. E. STANGL, St. Cloud.

To Fort Oglethorpe, for instruction, Lieut. E. O. SWANSON, Brainard.

To Fort Riley, base hospital, Capt. A. J. RUDOLF, Waseca. For instruction, Lieuts. L. J. HOLMBERG, Canby; A. M. CRANDALL, Fairfax; F. T. CAVANOR, Minneapolis.

To Fort Sam Houston, Texas, for duty, from Fort Riley, Lieut. W. J. KUCERS, Hutchinson.

To Hot Springs, Ark., for observation and treatment, Lieut. F. P. FRISCH, Kimball. For temporary duty, from Camp Colt, Lieut. R. N. JONES, Minneapolis.

To Mineola, L. I., N. Y., Hazelhurst Field, for duty, from Surgeon-General's Office, Capt. A. S. HAMILTON, Minneapolis.

To New Haven, Conn., for temporary duty, from Camp Custer, Capt. C. R. CHRISTENSON, Starbuck.

To New York, Bellevue Hospital, for instruction, and on completion *to his proper station*, from Camp Sherman, Lieut. H. J. A. HARTIG, Minneapolis.

To report to the commanding general, Central Department, for assignment to duty, Capts. J. D. WEIR, Beardsley; A. G. MOFFATT, Howard Lake.

To Rockefeller Institute for instruction in laboratory work, and on completion *to Army Medical School* for duty, Lieut. H. H. WARNER, St. Paul.

To Rock Island, Ill., for duty, from Camp Custer, Major C. H. CLARK, Duluth.

To San Francisco, Calif., Letterman General Hospital, for duty, from Camp Kearney, Lieut. A. F. STRICKLER, Sleepy Eye.

To Whipple Barracks, Ariz., for duty, from Camp Dodge, Capt. J. W. DANIELS, St. Peter.

The following orders have been revoked *To Fort Oglethorpe* for instruction, Capt. A. MACLAREN, St. Paul; Lieut. A. G. BEYER, Red Wing.

Mississippi

To Azalea, N. C., for duty, from New Haven, Capt. T. D. BOURDEAUX, Meridian.

To Camp Beauregard, Alexandria, La., for duty, from New Orleans, Capt. M. C. HENRY, Bentonia.

To Camp Bowie, Fort Worth, Texas, base hospital, Lieut. H. M. SMITH, Natchez.

To Camp Crane, Allentown, Pa., for temporary duty, from Camp Devens, Lieut. E. E. FARMER, Dockery.

To Camp Greene, Charlotte, N. C., for duty, Lieut. G. C. DAVIS, Leesburg.

To Camp Meade, Admiral, Md., for duty, from Walter Reed General Hospital, Lieut. J. D. SAULS, Clarksdale.

To Fort Oglethorpe for instruction, Lieut. C. RUFF, Tommolen.

To Fort Ontario, N. Y., base hospital, from Camp McClellan, Lieut. J. S. ADAMS, DeKalb.

To New Haven, Conn., for duty, Lieut. B. C. BERNARD, Senatobia.

Honorably discharged, Lieut. C. A. MARTIN, Chunky.

Missouri

To Ann Arbor, Mich., State Psychopathic Hospital, for intensive training, from Camp Pike, Lieut. T. N. TOOMEY, St. Louis.

To Azalea, N. C., for duty, from New Haven, Capt. P. G. PAUGH, St. Louis.

To Camp Crane, Allentown, Pa., for temporary duty, from Camp Fremont, Lieut. G. L. HARRINGTON, Independence.

To Camp Dix, Wrightstown, N. J., for duty, from Hoboken, Lieut. C. H. WESTERMAN, St. Louis.

To Camp Grant, Rockford, Ill., base hospital, Capt. E. T. SENSENEY, St. Louis.

To Camp Hancock, Augusta, Ga., base hospital, from Fort Oglethorpe, Lieut. F. F. HAAS, St. Louis.

To Camp Jackson, Columbia, S. C., base hospital, Lieut. U. S. SHORT, St. Louis.

To Camp Lee, Petersburg, Va., base hospital, Lieut. J. B. McCUBBIN, Fulton.

To Camp Lewis, American Lake, Wash., base hospital, Lieut. H. A. CALVERT, Smithville.

To Camp Logan, Houston, Texas, base hospital, Lieut. L. P. FORGRAVE, St. Joseph.

To Camp Meade, Admiral, Md., with the board examining the troops for tuberculosis, Lieut. F. JAMES, Sheldon.

To Camp Pike, Little Rock, Ark., base hospital, Capt. P. H. SWAHLEN, St. Louis.

To Camp Sevier, Greenville, S. C., base hospital, Lieut. R. M. CATER, Marceline.

To Camp Shelby, Hattiesburg, Miss. hospital, Lieut. A. L. HERTEL, St. Louis. *mand* for nervous and mental diseases, Capt. St. Joseph.

To Camp Wadsworth, Spartanburg, S. C., *to examine the command* for nervous and mental diseases, Lieut. E. B. M. CASEY, St. Louis.

To Cape May, N. J., for temporary duty, from Camp Colt, Lieut. J. R. VAUGHAN, St. Louis.

To Fort Oglethorpe for instruction, Capt. W. E. MEANWELL, Columbia, Lieut. E. L. DALLWIG, St. Louis.

To Fort Riley for instruction, Capts. H. BRYAN VAN ALLEN, Cole Camp; F. L. FINLEY, GROVE, Excelsior Springs; J. R. MABEE, TON, Kansas City; R. L. FOGLE, Otterville A. GUNDLACH, C. A. HOBERECHT, JULI St. Louis, Lieuts. T. J. DRISDEL, Dadeville; M. T. EDMONSON, Fair Grove; W. R. KING, Joplin; P. LUX, Kansas City; J. O. BRADSHAW, Lebanon; J. T. BRICE, Mount Moriah; J. H. YOUNG, Ozark; O. M. CHAMBERLAIN, Rockport; O. T. MOREY, Salisbury.

To Fort Sam Houston, Texas, base hospital, Capts. W. M. WEST, Monett; F. H. SPENDER, St. Joseph. For duty, from Fort Riley, Capt. G. F. ALTON, Barry.

To Fort Sill, Okla., base hospital, from Camp Zachary Taylor, Lieut. O. P. McPHERSON, Kansas City. For duty, from Camp MacArthur, Lieut. J. H. ARMSTRONG, Glendale.

To Newport News, Va., for duty, Capt. T. M. PAUL, St. Joseph, from Camp Crane, Major W. E. LEIGHTON, St. Louis.

To New York, Neurological Institute, for instruction, Lieut. O. B. ZIENERT, St. Louis.

To report to the commanding general, Central Department, for assignment to duty, Capts. O. C. O'KELL, Excelsior Springs; S. D. REYNOLDS, Gower.

Honorably discharged on account of physical disability incurred in line of duty, Lieut. J. W. RICE, Kansas City.

The following orders have been revoked: *To Fort Oglethorpe* for instruction, Capt. C. D. CANTRELL, Kansas City. *To Fort Riley* for instruction, Lieut. J. B. STOKES, St. Louis.

Montana

To Camp Grant, Rockford, Ill., base hospital, Capt. E. W. THUERER, Billings.

To Fort Riley for instruction, Lieuts. F. C. VICARS, Livingston; J. R. McDOWELL, Wibaux.

To New York, Neurological Institute, for instruction, Lieut. A. G. BIDDLE, Butte.

Nebraska

To Camp Custer, Battle Creek, Mich., base hospital, Capt. H. E. BURDICK, David City.

To Fort Oglethorpe for instruction, Lieut. C. S. LENTZ, Omaha.

To Fort Riley, base hospital, Capt. J. J. HOMPES Lincoln. For instruction, Capts. J. P. FEESE, H. C. SMITH, Franklin; R. T. VAN METRE, Fremont; Lieuts. R. R. CRAFT, Exeter; A. A. ASHBY, Fairmont; D. L. BARTLING, Hermon.

To Fort Sam Houston, Texas, for duty, from Fort Riley, Capts. J. G. W. WESTERHOFF, Carleton; C. B. CALBREATH, Hastings.

To Fort Sill, Okla., base hospital, from Camp MacArthur, Lieut. C. D. SPIVEY, Lincoln. For duty, from Camp Kelly, Capt. C. MINNICK, Curtis.

To Lake Charles, La., for duty, from Camp Kelly, Lieut. FRANK H. MORROW, Columbus.

To Watervliet, N. Y., for duty, from Camp Sherman, Capt. J. BUIS, Pender.

Nevada

To Fort Sam Houston, Texas, for duty, from Fort Riley, Lieut. H. A. PARADIS, Bauvard.

New Hampshire

To Camp Greene, Charlotte, N. C., for duty, Lieut. H. R. AMDEN, Concord.

To Camp Meade, Admiral, Md., for duty, Lieut. C. E. HIGHT, Groveton.

To Fort Oglethorpe for instruction, Capt. C. E. JOHNSTON, Portsmouth; Lieuts. E. W. COATES, Farmington; P. J. KITTREDGE, Portsmouth.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to Camp Wadsworth*, Spartanburg, S. C., base hospital, Capt. G. C. WILKINS, Manchester.

New Jersey

To Camp Joseph E. Johnston, Jacksonville, Fla., for duty, Lieut. L. M. COLLINS, Greystone Park.

To Camp Kearney, Linda Vista, Calif., as division surgeon, from Camp Dix, Lieut.-Col. J. L. SINOR.

To Camp MacArthur, Waco, Texas, with the board examining the troops for tuberculosis, from Camp Cody, Capt. G. THORBURN, Newark.

To Camp Meade, Admiral, Md., base hospital, Capt. F. R. SHEPPARD, Millville. For duty, Capt. P. B. CREGAR, Plainfield; Lieut. M. E. GORE, East Orange.

To Camp Shelby, Hattiesburg, Miss., base hospital, from Camp Jackson, Lieut. W. L. THOMPSON, Jersey City.

To Camp Sherman, Chillicothe, Ohio, base hospital, from Army Medical School, Lieut. G. FASANO, Newark.

To Fort McHenry, Md., for temporary duty, from Camp Jackson, Lieut. I. E. DEIBERT, Camden.

To Fort Moultrie, S. C., for duty, Capt. H. S. COSTILL, Trenton.

To Fort Oglethorpe for instruction, Capt. M. J. SULLIVAN, Englewood; Lieuts. C. B. MAXSON, Jersey City; A. W. JUSTIN, Union Hill.

To Fort Sill, Okla., base hospital, from Camp Sevier, Capt. S. T. QUINN, Elizabeth.

To Governors Island, N. Y., for duty, Capt. J. R. POLLARD, Chatham.

To Plattsburg Barracks, N. Y., for duty, Lieut. W. D. SILKWORTH, Newark.

To report to the commanding general, Eastern Department, for assignment to duty, Capts. A. S. MADDOX, Ashbury Park; J. S. HEWSON, Newark.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to his proper station*, from Camp Devens, Capts. C. R. NEARE, East Orange; J. S. MACLAY, Paterson.

To Tobyhanna, Pa., for duty, Capt. G. W. FITHIAN, Perth Amboy.

The following orders have been revoked: *To Camp Forrest*, Chickamauga Park, Ga., for duty, Lieut. JOHN P. REEVES, Elmer. *To Camp Meade*, Admiral, Md., for duty, Lieut. R. STEWART, Secaucus. *To Camp Sherman*, Chillicothe, Ohio, base hospital, from Camp Dix, Capt. A. F. McBRIDE, Paterson. *To Camp Wadsworth*, Spartanburg, S. C., for duty, from Hampton, Lieut. J. G. COLEMAN, Hamburg. *To Fort Oglethorpe* for instruction, Capt. J. L. FEWSMITH, Newark. *To Garden City, L. I., N. Y.*, for duty, Lieut. R. D. HENDERSON, Jersey City.

New Mexico

To Camp Cody, Deming, N. M., base hospital, Capt. D. D. SWEARINGEN, Roswell.

New York

To Azalea, N. C., for duty, from New Haven, Lieuts. H. J. SEIFF, New York; S. L. WANG, Staten Island.

To Camp Abraham Eustis, Lee Hall, Va., for duty, Lieut. B. R. BASS, Brooklyn.

To Camp Crane, Allentown, Pa., base hospital, from Fort Riley, Lieut. A. M. RABINER, Albany. For temporary duty, from Camp Joseph E. Johnston, Lieut. H. HERSHBERG, New York; from Camp Upton, Capt. C. F. CLAASSEN, Brooklyn; from Fort Oglethorpe, Lieut. S. S. FERN, New York. *To examine the command* for nervous and mental diseases, from Camp Custer, Lieut. B. GLUECK, Ossining.

To Camp Custer, Battle Creek, Mich., base hospital, Major T. H. McKEE, Buffalo. *To examine the command* for nervous and mental diseases, from Mineola, Major A. S. MOORE, Middletown.

To Camp Devens, Ayer, Mass., base hospital, Lieuts. A. T. JACOBS, New York; F. F. McCAULEY, Schenectady. From Camp Sheridan, Major L. T. GRIFFITH, New York. From Rockefeller Institute, Capt. A. H. TERRY, New York. For duty, Capt. S. W. BRADSTREET, Irondequoit; Lieuts. H. P. JOFFMAN, Buffalo; F. S. WESTMORELAND, New York.

To Camp Dix, Wrightstown, N. J., base hospital, Lieut. J. P. HENNESSY, New York. For duty, Lieut. M. L. SOLKOW, New York.

To Camp Dodge, Des Moines, Ia., base hospital, from Fort Des Moines, Capt. K. E. WILLIAMS, Rome.

To Camp Greene, Charlotte, N. C., for duty, Lieuts. H. T. CARTWRIGHT, C. H. ROGERS, New York.

To Camp Hancock, Augusta, Ga., base hospital, Lieut. J. COLOMB, New York.

To Camp Jackson, Columbia, S. C., base hospital, from Camp Hancock, Capt. J. H. EVANS, Virgil, from Waynesville, Capt. M. E. LEARY, Rochester.

To Camp Joseph E. Johnston, Jacksonville, Fla., for duty, from Fort Oglethorpe, Lieut. D. J. TILLON, Elmira.

To Camp Lee, Petersburg, Va., base hospital, Capt. J. R. GRAHAM, New York.

To Camp Lewis, American Lake, Wash., base hospital, from Fort Sam Houston, Lieut. A. G. De SANCTIS, New York.

To Camp MacArthur, Waco, Texas, for duty, from Fort Sill, Lieut. L. D. CREMIN, Ossining.

To Camp McClellan, Anniston, Ala., base hospital, Capt. F. M. O'GORMAN, Buffalo.

To Camp Meade, Admiral, Md., base hospital, Lieut. J. W. BABCOCK, New York. For duty, Lieut. J. L. BOTH, Edgemore, L. I. *To examine the command* for nervous and mental diseases, Capt. T. I. TOWNSEND, Binghamton. With the board examining the troops for cardiovascular diseases from Fort Thomas, Capt. H. JAMES, New York.

To Camp Shelby, Hattiesburg, Miss., base hospital, from Camp Jackson, Lieut. P. W. FETZER, New York.

To Camp Travis, Fort Sam Houston, Texas, for duty, from Camp MacArthur, Lieut. L. L. HOLLENBECK, New York.

To Camp Upton, L. I., N. Y., with the board examining the command for nervous and mental diseases, Lieut. H. E. SCHORR, New York.

To Camp Wadsworth, Spartanburg, S. C., base hospital, Capt. D. WEST, New York. For duty, from Camp Meade, Lieut. P. J. HIRST, Middle Grove.

To Camp Wheeler, Macon, Ga., base hospital, from Baltimore, Capt. C. H. SANFORD, New York.

To Camp Zachary Taylor, Louisville, Ky., for duty, from Camp Sherman, Capt. D. R. ROBERT, Brooklyn.

To Carlisle, Pa., for duty, from Camp Devens, Lieut. H. SMITH, New York.

To Fort Des Moines, Ia., base hospital, from Camp Sevier, Major T. WRIGHT, Buffalo.

To Fort McHenry, Md., for temporary duty, from Camp Jackson, Lieut. R. H. OPPENHEIMER, Blackwell's Island.

*To Fort Monroe, Va., f*or duty, from Fort McPherson, Lieut. W. W. BELL, New York.

To Fort Niagara, N. Y., for duty, Capt. N. B. FORD, Owasco.

To Fort Oglethorpe as instructor, Major W. H. STEWART, New York. For instruction, Major O. M. SCHWERDTFEGER, New York; Capts. G. T. WILSON, Hoosick Falls; F. S. HEIMER, Mt. Upton; J. J. HARRINGTON, New York; Lieuts. M. T. RAUH, L. D. VOLK, Brooklyn; M. A. MURPHY, Hoosick Falls; T. J. RYAN, New York.

To Fort Ontario, N. Y., base hospital, from Camp McClellan, Lieut. W. L. WEEDEN, Clifton Springs.

To Fort Sill, Okla., base hospital, from Camp Bowie, Lieut. A. G. MOTT, Yonkers.

To Fort Snelling, Minn., for duty, from Camp Grant, Major A. S. CLARK, New York.

To Hampton, Va., Langley Field, for temporary duty, from Fort Oglethorpe, Lieut. S. S. INGALLS, Parish.

To Hoboken, N. J., for duty, from Camp Sevier, Lieut. M. T. KOVEN, Brooklyn.

To Hot Springs, Ark., for temporary duty, from Camp Colt, Lieut. M. Q. HOWARD, New York.

To Lakewood, N. J., for temporary duty, Capt. J. B. RINGLAND, Oswego.

To New Haven, Conn., for duty from Otisville, Capt. T. F. ELLIS, New York. *To Yale Army Laboratory School* for instruction, Lieut. D. M. MARKOFSKY, New York; from Fort Leavenworth, Lieut. D. JUNG, Buffalo.

To New York, Bellevue Hospital, for instruction, and on completion *to his proper station,* from Camp Jackson, Lieut. W. C. MacDONALD, New York; from Camp Meade, Lieut. F. C. CARR, New York; from Camp Zachary Taylor, Lieut. R. G. CARLIN, New York. Neurological Institute, for intensive training, Lieut. M. KOHLENBERG, Brooklyn.

To Plattsburg Barracks, N. Y., for duty, Lieut. J. W. MAMBERT, Hudson; from Camp Wheeler, Capt. C. K. VAUX, Central Islip, from Fort Porter, Capt. J. G. STOWE, Buffalo.

To Rockefeller Institute for instruction in the treatment of infected wounds and on completion to Camp Devens, Ayer, Mass., base hospital, Capt. W. M. HALSEY, Oswego; Lieut. E. F. BRIGGS, Bedford Hills. On completion *to Camp Greene,* Charlotte, N. C., base hospital, Capt. C. E. FARR, New York. On completion *to Camp Upton, L. I., N. Y.,* base hospital, Lieut. T. J. Ryan, New York.

To Syracuse, N. Y., for duty, from Camp Crane, Capt. D. E. BRACE, New York.

To Washington, D. C., St. Elizabeth's Hospital, for duty, from Walter Reed General Hospital, Capt. H. L. RAYMOND, Collins.

To Waynesville, N. C., for duty, from New Haven, Capt. E. C. JOYCE, New York.

To Wichita Falls, Texas, as flight surgeon, from Mineola, Capt. S. A. MUNFORD, Ithaca.

Honorably discharged on account of physical disability existing prior to entrance into the service, Capt. F. W. FILSINGER, Buffalo; Lieut. D. M. GILDERSLEEVE, Brooklyn.

The following orders have been revoked: *To Camp Abraham Eustis,* Lee Hall, Va., base hospital, from Camp Lee, Capt. E. G. MacFARLAND, Clinton. Camp hospital, Lieut. J. L. EVERLOG, Brooklyn. *To Fort Oglethorpe* for instruction, Lieut. W. STEINHAUSER, New York.

North Carolina

To Camp A. A. Humphreys, Accotink, Va., for temporary duty, Lieut. A. P. KELLY, Carthage.

To Camp Dix, Wrightstown, N. J., for temporary duty, Lieut. B. M. BRADFORD, Hope Mills.

To Camp Dodge, Des Moines, Ia., for duty, from Fort Oglethorpe, Lieut. L. E. GUION, Waxhaw.

To Camp Greene, Charlotte, N. C., for duty, Capt. M. J. KING, Durham.

To Fort Oglethorpe for instruction, Lieut. C. McGOWAN, Plymouth.

To Fort Ontario, N. Y., base hospital, from Camp Devens, Lieut. R. L. DANIELS, Goldsboro.

To Fort Slocum, N. Y., for duty, from Fort Thomas, Capt. A. DURHAM, Charlotte.

Honorably discharged on account of physical disability existing prior to entrance into the service, Capt. A. H. HARRISS, Wilmington.

The following order has been revoked: *To Camp Wadsworth,* Spartanburg, S. C., for duty, from Southeastern Department, Lieut. M. R. FARRAR, Greensboro.

North Dakota

To Fort Riley for instruction, Lieut. W. C. WILSON, Grand Forks.

Ohio

To Ann Arbor, Mich., State Psychopathic Hospital for intensive training, from Camp Sherman, Lieut. A. E. KISER, Cincinnati.

To Belleville, Ill., Scott Field, for duty, Lieut. A. J. SHOEMAKER, Columbus.

To Camp Crane, Allentown, Pa., for temporary duty, from Camp Pike, Lieut. O. E. TOWNSEND, Cleveland; from Des Moines, Major F. C. HERRICK, Cleveland.

To Camp Custer, Battle Creek, Mich., for duty, Lieuts. A. H. CALHOUN, Canton; M. P. MOTTO, Cleveland; P. C. COLEGROVE, Oberlin.

To Camp Devens, Ayer, Mass., for duty, Lieut. L. E. KERR, Toledo.

To Camp Dix, Wrightstown, N. J., for temporary duty, Lieuts. J. C. STAATS, Cincinnati; W. L. LATHROP, Metamora.

To Camp Greene, Charlotte, N. C., base hospital, Capt. B. B. KIMMEL, Cleveland,. For duty, Capt. O. P. KIMMEL, New Madison.

To Camp Meade, Admiral, Md., base hospital, Capt. A. M. STEINFELD, Columbus. For duty, Capt. J. A. HURT, Cleveland; Lieut. F. J. J. LEHMANN, Toledo; from Washington, Capt. H. L. TAYLOR, Cleveland.

To Camp Sheridan, Montgomery, Ala., for duty, from Fort Oglethorpe, Lieut. W. A. DEERHAKE, St. Mary's.

To Camp Sherman, Chillicothe, Ohio, base hospital, Capt. G. C. SULLIVAN, Dayton.

To Camp Zachary Taylor, Louisville, Ky., base hospital, Lieut. F. B. CROSS, Cincinnati.

To Cleveland, Ohio, Lakeside Hospital, for duty, Lieut. R. G. PEARCE, Cleveland. To examine applicants, Lieut. C. A. BOWERS, Cleveland.

To Fort McHenry, Md., for duty, from Washington, Capt. M. G. BALDWIN, Toledo.

To Fort McPherson, Ga., for duty, from New York, Lieut. C. H. Hyman, Payne.

To Fort Meyer, Ga., for duty, Capt. I. H. HUNTER, Toledo.

To Fort Monroe, Va., for duty, from Fort McPherson, Lieut. N. C. MAYER, Cleveland.

To Fort Niagara, N. Y., for duty, Lieut. W. E. KNEALE, Akron.

To Fort Oglethorpe for instruction, Capts. J. A. LYTLE, Cleveland; L. B. ZINTAMASTER, Massilon; Lieuts. W. J. SMITH, Arcanum; A. M. SHAFER, Canal Fulton; H. L. WELLS, Cambridge; H. C. WAYBLE, Cincinnati; R. S. DINSMORE, H. S. THOMPSON, Cleveland; R. R. BOND, Dayton; H. C. WAITE, Columbus; G A MILLER, Hudson; H. B. VAN RYNING, Lakewood; T. P. JOHNSTON, Mount Giliad; E. V. BERRY, Newscomerstown; W. P. ULTES, Springfield; H. K. BECKWITH, Toledo.

To Governors Island, N. Y., for duty, Lieuts. C. S. CAVETT, North Baltimore.

To Hampton, Va., Langley Field, for duty, Lieut. R. E. FINLEY, Xenia.

To Hoboken, N. J., for temporary duty, from Camp A. A. Humphreys, Major F. WINDERS, Columbus.

To Hot Springs, N. C., for temporary duty, from Army Medical School, Lieut. R. B. STEVENSON, Columbus.

To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieut. J. H. WARVEL, Bradford.

To New York, Bellevue Hospital, for instruction, and on completion *to Camp Jackson,* Columbia, S. C., base hospital, Lieut. G. W. MILLER, Columbus. On completion *to Camp Lee,* Petersburg, Va., base hospital, Capt. U. K. EESSINGTON, Newark. On completion *to his proper station,* from Camp Jackson, Lieut. M. S. GRIFFITH, Batavia. Neurological Institute, for instruction, from Camp Jackson, Lieut. B. B. NEUBAUER, Cleveland.

To Pittsburgh, Pa., for duty, Capt. R. R. HENREDSHOTT, *Tiffin.*

To Rochester, N. Y., to examine drafted men, from Camp Lee, Lieut. B. H. GILLESPIE, Akron.

To Syracuse, N. Y., for duty, from Camp Upton, Lieut. F. B. SNODGRASS, Kenton.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. F. T. MILES, Salem.

The following orders have been revoked: *To Camp Crane,* Allentown, Pa., for duty, Lieut. J. E. McCLELLAND, Cleveland. *To Fort Oglethorpe* for instruction, Lieut. H. GRAEFE, Sandusky.

Oklahoma

To Camp A. A. Humphreys, Accotink, Va., base hospital, Capt. J. M. COOPER, Oklahoma City.

To Camp Cody, Deming, N. M., base hospital, Lieut. H. P. PRICE, Tulsa. For duty, Capt. S. C. DAVIS, Oklahoma City.

To Camp Hancock, Augusta, Ga., base hospital, from Fort Oglethorpe, Lieut. R. L. WESTOVER, Okmulgee.

To Camp Lewis, American Lake, Wash., base hospital, from Camp Travis, Lieut. T. A. HARTGRAVES, Soper.

To Camp McClellan, Anniston, Ala., for duty, Lieut. C. H. MORRIS, Vion.

To Camp Travis, Fort Sam Houston, Texas, base hospital, Lieut. B. C. RUTHERFORD, Oilton.

To Fort Bayard, N. M., for duty, from Camp Travis, Lieut. W. R. LEVERTON, Hobart.

To Fort Oglethorpe for instruction, Lieut. W. M. GALLAGHER, Shawnee.

To Fort Riley for instruction, Lieuts. W. H. KINGMAN, Bartlesville; T. T. CLOHESSY, Berlin; F. E. SADLER, Coalgate; L. L. SMITH, Keifer; E. E. GOODRICH, Tecumseh; W. J. TRAINOR, Tulsa; J. A. MUNN, Wilburton.

To Fort Sam Houston, Texas, for duty, from Fort Riley, Lieuts. E. J. REICHLEY, Helena; C. E. SEXTON, Stillwater.

To Fort Sill, Okla., base hospital, from Camp Bowie, Lieut. M. H. FOSTER, Alderson.

To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieut. V. L. McPHERSON, Boswell.

To Newport News, Va., as orthopedic surgeon, from Fort Oglethorpe, Lieut. W. H. DERSCH, Carmen.

To New York, Bellevue Hospital, for instruction, and on completion *to his proper station,* from Camp A. A. Humphreys, Major R. L. KURTZ, Nowata.

To report to the commanding general, Southern Department, for assignment to duty, Capt. J. M SALTER, Sulphur; from Camp Cody, Lieut. C. W. ALEXANDER, Temple.

Oregon

To Camp Meade, Admiral Md., for duty, from Camp Abraham Eustis, Lieut. E. J. GAMBLE, Portland.

To Fort Riley for instruction, Lieuts. G. E. RIGGS, Albany; H. J. SCHENK, Lebanon.

To New Haven, Conn., Yale Army Laboratory School, for instruction, Capt. J. H. THOMPSON, Enterprise.

To New York, Neurological Institute, for instruction, Lieut. G. N. PEASE, Portland.

To report to the commanding general, Western Department, for assignment to duty, Lieut. C. H. FRANCIS, Bond.

Panama

To Camp Sheridan, Montgomery, Ala., as assistant to camp surgeon, from Canal Zone, Major W. C. H. PROSSER.

To Camp Wadsworth, Spartanburg, S. C., as assistant to camp surgeon, from Canal Zone, Major C. LE BARON.

Pennsylvania

To Camp A. A. Humphreys, Accotink, Va., for duty, from Camp Meade, Lieut. E. H. REBHORN, Scranton.

To Camp Cody, Deming, N. M., base hospital, Lieut. J. L. ZIMMERMAN, Hershey.

To Camp Crane, Allentown, Pa., for temporary duty, from Camp Custer, Capt. C. H. STIMSON, Philadelphia; from Camp Dix, Lieut. H. H. LAMB, Braddock, from Camp Gordon, Lieut. N. W. WINKELMAN, Bridgeville; from Camp Grant, Lieut. H. I. NEWCOMET, Reading; from Camp Jackson, Lieut. G. S. VOGAN, Pittsburgh; from Camp Sherman, Lieut. F. FRALEY, Philadelphia; from Washington, Lieut. H. L. CARNCROSS, Philadelphia.

To Camp Devens, Ayer, Mass., base hospital, Lieut. J. E. WYATT, Fountain Springs. For duty, Capt. I. N. FREYMAN, Weatherly; Lieut. T. R. FERGUSON, Kirkwood.

To Camp Dix, Wrightstown, N. J., base hospital, Capt. L. D. SARGENT, Washington. For temporary duty, Lieut. D. L. McCANDLESS, Butler.

To Camp Dodge, Des Moines, Iowa, base hospital, Capt. C. S. CALDWELL, Swissvale.

To Camp Greene, Charlotte, N. C., for duty, Capt. L. C. ROWLES, Clearfield.

To Camp Hancock, Augusta, Ga., base hospital, Capt. F. B. UTLEY, Pittsburgh; Lieut. J. S. MORGAN, Crafton.

To Camp Holabird, Baltimore, Md., for duty, Lieut. F. G. STUBBS, Philadelphia, from Walter Reed General Hospital, Lieut. E. J. KALODNER, Philadelphia.

To Camp Joseph E. Johnst[illegible] [illegible], for duty, from Fort Oglethorpe, Lieut. R. J. [illegible] [illegible]n Walter Reed General Hospital, Lieut. J. A. [illegible]

To Camp Las Casas, San Juan, P. R., for duty, Capt. J. E. MADARA, Mauch Chunk.

To Camp Lee, Petersburg, Va., base hospital, Capts. W. K. SWANN, Monroe; W. H. MORROW, Swissvale; Lieuts. E. M. HUGHES, Butler; V. P. VIESLET, *Charlaroi;* E. D. RUSSELL, Reamstown.

To Camp Meade, Admiral, Md., as orthopedic surgeon, from Boston. Capt. C. A. COHN, Lancaster. Base hospital, Capt. R. M. ALEXANDER, Reading. For duty, Lieuts. S. J. DICKEY, Conneautville; M J. SCHWARTZ, Philadelphia; W. L. GROUNDS, Roaring Springs; from Camp Hancock, Lieut. C. O. W. BARTINE, Philadelphia.

To Camp Sevier, Greenville, S. C., as sanitary inspector, from Fort Oglethorpe, Major W. K. EVANS, Chester.

To Camp Sheridan, Montgomery, Ala., base hospital, Capt. M. W. REED, Bellefonte. For duty, Fort Oglethorpe, Lieut. D. R. SZABO, Duquesne.

To Camp Wadsworth, Spartanburg, S. C., base hospital, Lieut. J. E. FERRINGER, Stoneboro. For duty, Lieuts. F. G. WRIGHT, Chambersburg; W. M. McWILLIAMS, Hillsville; from Camp Devens, Lieut. F. D. LEVY, Philadelphia.

To Camp Wheeler, Macon, Ga., base hospital, Capt. A. M. STEVENSON, Pittsburgh.

To Charleston, S. C., for duty, Lieut. J. P. SHAW, Pittsburgh.

To Fort Des Moines, Iowa, base hospital, from Camp Dodge, Lieut. A. K. CORT, Wilson.

To Fort Monroe, Va., for duty; Major E. LaPLACE, Philadelphia; from Fort McPherson, Lieut. W. J. BASLER, Harrisburg.

To Fort Niagara, N. Y., for duty, Major S. M. HUFF, Bellefonte; Capt. J. N. W. ANDERSON, Pittsburgh.

To Fort Oglethorpe for instruction, Capts. G. L. McKEE, Burgettstown; G. E. PATTERSON, Washington; Lieuts. J. P. EGAN, Braddock; C. B. NORCROSS, Clairton; P. T. HOHE, Mercer; T. J. McGURL, Minersville; J. SHATACK, Nesquehoning; M. B. BERNARD, Philadelphia; A. F. KAMENS, J. D. KISTLER, Pittsburgh; G. I. YEARICK, Portage; H. E. MASSY, Sharon.

To Fort Ontario, N Y., base hospital, from Camp Dix, Lieut. M. A. BLUMER, Pittsburgh; from New York, Lieut. G. L. LAVERTY, Harrisburg. For duty, from New York, Lieut. J. E. DWYER, Polk.

To Fort Thomas, Ky., for duty, from Columbus Barracks, Lieut. S. W. MILLER, Jr., Lancaster.

To Governors Island, N. Y., for duty, Lieut. H. W. TITTLE, New Florence.

To Houston, Tex., Ellington Field, as flight surgeon, from Millington, Major R. J. HUNTER, Philadelphia.

To Lakewood, N. J., for temporary duty, Capt. W. P. HUGHES, Pittsburgh.

To Mineola, L. I., N. Y., Hazelhurst Field, for instruction, Capt. J. H. McKEE, Philadelphia.

To New Haven, Conn., for duty, Lieuts. N. D. MacARTAN, Cresson; M. DEPTA, Pittsburgh. *To Yale Army Laboratory School,* for instruction, Lieuts. J. A. COEN, Briestoria; A. D. WALTZ, Philadelphia.

To New York, Neurological Institute, for instruction, Capt. R. J. BEHAN, Pittsburgh; Lieuts. A. B. HAMILTON, Freeland; R. P. BATCHELOR, Palmerton.

To Pittsburgh, Pa, for duty, Lieut. J. M. MONAGHAN, Minersville.

To report by wire to the commanding general, Eastern Department, for assignment to duty, Capt. S. O. BRUMBERG, Huntingdon.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to Camp Dix,* Wrightstown, N. J., base hospital, Lieut. W. E. GARDNER, Pittsburgh. On completion *to Camp Hancock,* Augusta, Ga., base hospital, Capt. W. C. MINNICH, McKees Rock. On completion *to Camp Wadsworth,* Spartanburg, S. C., base hospital, Lieut. J. P. HARLEY, Williamsport. On completion *to his proper station,* from Camp Dix, Lieut. L. C. RUMMAGE, Sweet Valley; from Camp McClellan, Lieut. M. E. SMOCZYNSKI, Philadelphia.

To Tuscaloosa, Ala., University of Alabama, for duty, from Camp Wadsworth, Lieut. J. STEIN, Scranton.

To Walter Reed General Hospital, Takoma Park, D. C., for temporary duty, Lieut. I. WILLIAMS, Pittsburgh; from the Surgeon-General's Office, Lieut. S. B. PEARCE, Pittsburgh.

Honorably discharged on account of physical disability existing prior to entrance into the service, Capt. R. K. WILSON. Jeannette; Lieut. J. L. HEARD, North East.

The following orders have been revoked: *To Camp Bowie,* Fort Worth, Tex., base hospital, from Southern Department, Lieut. D. M. AIKMAN, Brockwayville. *To Camp Shelby,* Hattiesburg, Miss., base hospital, from Fort McPherson, Capt. S. D. INGHAM, Philadelphia. *To Fort Oglethorpe* for instruction, Lieut. H. M. HALL, Jr., Pittsburgh. *To Walter Reed General Hospital* for observation and treatment, Capt. C. D. E. PANNACI, Gloversville.

Rhode Island

To Camp Joseph E. Johnston, Jacksonville, Fla., for duty, from Fort Oglethorpe, Lieut. T. S. FLYNN, Woonsocket.

To Camp Lewis, American Lake, Wash., base hospital, from Camp Fremont, Major J. HAMILTON, Jr., Providence.

To Camp Meade, Admiral, Md., for duty, Lieut. H. DeWOLF, Bristol.

To Fort Oglethorpe for instruction, Capt. N. C. BAKER, Providence.

To Governor's Island, N. Y., for duty, Capt. H. W. HEATON, Providence.

South Carolina

To Camp Greene, Charlotte, N. C., base hospital, Lieut. J. R. SPARKMAN, Spartanburg. *For duty,* Capt. J. H. LAWRENCE, Pendleton; Lieuts. J. C. HILL, Abbeville; R. M. FULLER, McCormick.

To Camp Kearney, Linda Vista, Calif., as assistant to the division surgeon, from Fort Oglethorpe, Lieut. T. MADDOX, Union.

To Camp Sheridan, Montgomery, Ala., for duty, from Fort Oglethorpe, Lieut. V. M. ROBERTS, Blackburg.

To Camp Wadsworth, Spartanburg, S. C., for duty, Lieut. J. W. MOLE, Brinson.

To Camp Wheeler, Macon, Ga., base hospital, Lieut. R. H. LONG, Carlisle.

To Fort Oglethorpe for instruction, Capts. L. A. RISER, Columbia; J. W. VALLEY, Pickens.

To Hoboken, N. J., for temporary duty, from Camp Devens, Lieut. J. D. COLSON, St. Stephen.

South Dakota

To Biltmore, N. C., for temporary duty, from Camp Custer, Capt. A. V. ELLIOTT, Beresford.

To Camp Custer, Battle Creek, Mich., for duty, Lieut. F. W. FLETCHER, Tyndall.

To Camp Dodge, Des Moines, Iowa, base hospital, Lieut. H. L. CRANE, Lead.

To Camp Grant, Rockford, Ill., base hospital, Capt. F. E. CLOUGH, Lead; Lieuts. T. J. DEVEREAUX, Aberdeen; V. R. HODGES, Terry.

To Camp Sherman, Chillicothe, Ohio, base hospital, Capt. C. F. CULVER, Sioux Falls.

To Fort Oglethorpe for instruction, Lieut. F. D. GILLIS, Mitchell.

To Fort Riley, base hospital, from Camp Grant, Capt. J. F. ADAMS, Aberdeen; from Camp Travis, Lieut. A. P. KIMBALL, Colome. For *instruction,* Lieuts. W. W. STEVENSON, Vermillion; R. B. FLEEGER, Lead; I. J. MARKEL, Lead.

Tennessee

To Ann Arbor, Mich., State Psychopathic Hospital, for intensive training, from Camp Gordon, Lieut. J. P. SCHELL, Nashville.

To Azalea, N. C., for duty, from New Haven, Lieuts. L. T. STEM, B. SULLIVAN, Chattanooga.

To Camp Crane, Allentown, Pa., for temporary duty, from Camp A. A. Humphreys, Lieut. S. H. BARRETT, Chattanooga.

To Camp Custer, Battle Creek, Mich., for duty, Lieut. J. R. MILLER, Joelton.

To Camp Greene, Charlotte, N. C., for duty, Lieut. B. E. DELOSIER, Townsend.

To Camp Joseph E. Johnston, Jacksonville, Fla., for duty, from Fort Oglethorpe, Lieut. G. T. WILHELM, Memphis.

To Camp Sheridan, Montgomery, Ala., for duty, from Fort Oglethorpe, Lieut. L. O. WILKERSON, Stanton.

To Fort Oglethorpe for instruction, Capt. G. F. ST. JOHN, Harriman; J. D. BREWER, Newbern; J. E. NELSON, Rockwood; Lieuts. B. S. MAYO, Dresden; D. L. JONES, Dukedom; M. THARP, Nashville.

To Fort Sill, Okla., base hospital, from Camp Bowie, Lieuts. W. D. RICHARDS, Elowah; S. HUNT, Knoxville.

To Hoboken, N. J., base hospital, from Fort Oglethorpe, Lieut. J. A. McINTOSH, Memphis.

To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieut. R. H. DENHAM, Lynnville.

Texas

To Ann Arbor, Mich., State Psychopathic Hospital, for intensive training, from Camp Travis, Lieut. C. W. STEVENSON, Loraine.

To Camp Bowie, Fort Worth, Tex., base hospital, Lieut. C. H. BROOKS, Waco.

To Camp Cody, Deming, N. M., for duty, Lieut. R. K. SMITH, Elmendorf.

To Camp Logan, Houston, Tex., base hospital, Capt. A. S. LOVE, Ballinger; Lieut. W. TAYLOR, Victoria.

To Camp MacArthur, Waco, Tex., base hospital, Lieut. E. W. RHEINHEIMER, El Paso.

To Camp McClellan, Anniston, Ala., for duty, Lieuts. T. P. LYNCH, Coleman; F. RANDOLPH, Como; J. L. AUSTIN, Rock Wall; W. F. LONG, Sulphur Springs.

To Camp Sevier, Greenville, S. C., base hospital, Lieut. R. G. FERGUSON, Dallas.

To Camp Shelby, Hattiesburg, Miss., base hospital, from Camp MacArthur, Major J. G. FLYNN, Galveston.

To Camp Sheridan, Montgomery, Ala., for duty, from Fort Oglethorpe, Capt. J. C. MICHAEL, Houston; Lieut. ST. J. R. MURCHISON, Marshall.

To Camp Sherman, Chillicothe, Ohio, for temporary duty, from Fort Oglethorpe, Lieut. C. H. TILLOTSON, Dalhart.

To Camp Travis, Fort Sam Houston, Tex., base hospital, Capts. I. J. MORRIS, Dallas; A. M. FREELS, Denison.

To Camp Upton, L. I., N. Y., for duty, from Camp MacArthur, Major S. NORMAN, Texas City.

To Fort Oglethorpe for instruction, Capts. D. A. MANN, Beaumont; W. C. DURINGER, Fort Worth; Lieuts. R. E. HILBURN, Antelope; B. E. PICKETT, Big Wells; H. E. ROGERS, El Paso; E. RANDALL, Jr., Galveston; C. C. HOWARD, Garner; T. M. GORDON, Stephenville; W. L. McWHIRTER, Waco; from Army Medical School, Lieut. J. R. HOLDERNESS, Commerce.

To Fort Riley, base hospital, Capt. B. U. SIMS, Bryan. For instruction, Capts. F. D. TEAS, Canadian; J. H. JERNIGAN, Childress; L. R. SMITH, Tyler; Lieut. L. PENROD, Gonzales.

To Fort Sam Houston, Tex., for duty, from Camp Travis, Lieut. M. E. HASTINGS, Galveston; from Fort Riley, Capt. J. A. DENMAN, Belton.

To Fort Sill, Okla., base hospital, from Camp Beauregard. Lieut. E. L. GRAHAM, McGregor, from Camp Wheeler, Capt. T. R. SEALY, Santa Anna. For duty, from Camp Kelly, Capt. W. F. BONNER, San Antonio; Lieut. D. L. LOWRY, Deus.

To Houston, Tex., Signal Corp Aviation School, for duty, from Camp Gordon, Lieut. J. H. HICKS, Elkhart.

To New Haven, Conn., for duty, from Camp Bowie, Lieut. C. R. GOWEN, Carlsbad. Yale Army Laboratory School, for instruction, Lieut. J. M. HARRIS, Fort Davis.

To report by wire to the commanding general, Southern Department, for assignment to duty, Capts. J. T. WATSON, Dallas; G. C. LAMB, El Paso; Lieut. B. A. RUSSELL, Southmayd.

The following orders have been revoked: *To Camp Lee*, Petersburg, Va., base hospital, Lieut. A. M. HUFFMAN, Polytechnic. *To Camp Wadsworth*, Spartanburg, S. C. for duty, from Camp Humphreys, Lieut. O. H. TIMMINS, San Antonio. *To New Haven, Conn.*, for duty, from Camp MacArthur, Lieut. A. J. STREIT, Marlin.

Utah

To Camp Fremont, Palo Alto, Calif., base hospital, Capt. F. N. McHUGH, Salt Lake City.

To Fort Riley, base hospital, Capt. A. J. MURPHY, Salt Lake City. For instruction, Capt. J. U. GIESY, Salt Lake City.

To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieut. P. S. HAGEMAN, Bingham Canyon.

To Talmadge, Calif., Mendocino State Hospital, for intensive training, Lieut. F. J. CURTIS, Salt Lake City.

Vermont

To Camp Joseph E. Johnston, Jacksonville, Fla., for duty, from Camp Upton, Lieut. C. N. PERKINS, Burlington.

To Camp Meade, Admiral, Md., for duty, Capt. E. M. CRANE, Hardwick; Lieut. A. E. WARREN, Warren.

To Fort Oglethorpe for instruction, Lieut. W. H. GRINNELL, Rutland.

To Millington, Tenn., Park Field, as flight surgeon, from Fort *Worth, Capt. A. L. LARNER, Burlington.*

Virginia

To Camp Abraham Eustis, Lee Hall, Va., base hospital, from Newport News, Lieut. R. K. STACY.

To Camp Dix, Wrightstown, N J., for temporary duty, Lieut. R. H. BROCKWELL, Barnetts.

To Camp Greene, Charlotte, N. C., for duty, Capt. E. C. LEVY, Richmond.

To Camp Logan, Houston, Tex., for duty, from Washington Barracks, Major L. Powell, Alexander.

To Camp Meade, Admiral, Md., for duty, Lieut. F. P. NELSON, Crozet.

To Camp Sevier, Greenville, S. C., as division surgeon, from Camp Lee, Lieut.-Col. C. E. FRONK.

To Camp Zachary Taylor, Louisville, Ky., for duty, from Fort Monroe, Major B. HILLSMAN, Richmond.

To Fort Oglethorpe for instruction, Lieut. J. L. HANKINS, Fordwick.

To Fort Ontario, N. Y., for temporary duty, from Fort Monroe, Major J. W. HOPE, Hampton.

To Newport News, Va., as orthopedic surgeon, from Fort Oglethorpe, Lieut. J. M. FADELEY, Falls Church.

To New York, Neurological Institute, for instruction, Lieut. J. L. McDONALD, Richmond.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to Camp Dix*, Wrightstown, N. J., base hospital, Capt. J. H. COLE, Bennington.

The following order has been revoked: *To Fort Oglethorpe for* instruction, Lieut. E. M. CORNS, Gate City.

Washington

To Camp Dodge, Des Moines, Iowa, base hospital, from Vancouver Barracks, Lieut. L. B. COLLIER, Seattle.

To Camp Lewis, American Lake, Wash., base hospital, Lieut. W. H. CARVER, Yakima.

To Camp Logan, Houston, Texas, as division surgeon, from Camp Lewis, Major H. M. WALSON.

To Camp Meade, Admiral, Md., for duty, Lieut. F. P. NELSON, Eustis, Capt. F. H. COLLINS, Goldendale.

To Fort Ontario, N. Y., base hospital, from Camp Lewis, Capt. A. H. PEACOCK, Seattle; from Jefferson Barracks, Lieut. G. I. HURLEY, Hoquaim.

To Fort Riley for instruction, Capt. H. A. MOUNT, Waitsburg; Lieut. F. A. LONGAKER, Olympia; G. BURKE, Tacoma.

To Fort Slocum, N. Y., for duty, from Camp Dix, Lieut. K. S. STAATS, Tacoma.

To San Francisco, Letterman General Hospital, for temporary duty, Lieut. S. E. ROSENTHAL, Spokane.

The following order has been revoked: *To Fort Oglethorpe*, for instruction, Lieut. R. S. VAN PELT, Tacoma.

West Virginia

To Camp Crane, Allentown, Pa., for temporary duty, from Fort McPherson, Lieut. J. E. HUBBARD, Hinton.

To Camp Greene, Charlotte, N. C., for duty, Lieut. H. A. TURK, Newell.

To Camp Meade, Admiral, Md., with the board *examining the troops* for tuberculosis, from New Haven, Lieut. J. W. GILMORE, Wheeling.

To Camp Shelby, Hattiesburg, Miss., base *hospital*, from Camp Jackson, Lieut. L. J. BUTLER, Hansford.

To Fort Caswell, N. C., for duty, Capt. A. L. PETERS, *Fairmont.*

To Fort Oglethorpe for instruction, Lieut. C. R. McGUFFIE, McMechen.

To Walter Reed General Hospital, Takoma Park, D. C., for duty, from Fort Porter, Capt. C. A. BARLOW, Beverly.

The following order has been revoked: *To Fort Oglethorpe* for instruction, Capt. J. W. McDONALD, *Fairmont.*

Wisconsin

To Azalea, N. C., for duty, from New Haven, Lieut. A. A. PLEYTE, Delafield; Lieut. E. P. ALLEN, Waukesha.

To Camp Custer, Battle Creek, Mich., base hospital, Capt. W. ACKERMAN, Milwaukee; Lieut. G. C. WAUFLE, Jamesville. For duty, Lieuts. F. G. DUTTON, Green Bay; G. A. THIELKE, Wausau.

To Camp Grant, Rockford, Ill., base hospital, Lieut. J. B. VEDDER, Marshfield. For duty, Lieut. M. A. FRONEY, Racine.

To Camp Hancock, Augusta, Ga., base hospital, from Fort Riley, Capt. W. P. FORKIN, Chilton.

To Camp Joseph E. Johnston, Jacksonville, Fla., for duty, from Fort Oglethorpe, Lieut. C. N. SONNENBURG, Sheboygan.

To Camp Sevier, Greenville, S. C., base hospital, Lieut. J. N. DOYLE, Princeton.

To Camp Sherman, Chillicothe, Ohio, base hospital, Lieut. A. J. WEBER, Milwaukee.

To Fort Oglethorpe for instruction, Lieuts. L. A. HOFFMAN, Campbellsport; P. C. HODGES, Madison; W. G. SEXTON, Marshfield.

To Fort Riley for instruction, Capt. H. A. Jefferson, Clintonville; Lieuts. H. J. CRAMBLING, Milwaukee; C. A. HEFTY, New Clarus.

To Fort Sam Houston, Tex., for duty, from Fort Riley, Lieut C. H. OLIVER, Boyerville.

To Madison University, Wis., for duty, Major J. A. E. RYSTER, Madison.

To Plattsburg Barracks, N. Y., for duty, from Fort Slocum, Capt. S. BLANTON, Madison.

To Rochester, Minn., Mayo Clinic, for instruction and on completion *to Camp Dodge*, Des Moines, Iowa, base hospital, Capt. E. L. MASEN, Eau Clair.

The *following order* has been revoked: *To Camp Meade*, Admiral, Md., base hospital, from Camp Crane, Lieut. C. B. RYDELL, Superior.

Wyoming

To Fort Riley, base hospital, Capt. G. A. FOX, *Cheyenne. For* instruction, Capt. M. A. NEWELL, Sheridan.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest; such as relate to society activities, new hospitals, education, public health, etc.)

CALIFORNIA

College Suspended.—The College of Physicians and Surgeons of San Francisco has discontinued the teaching of medicine, but will retain a nominal existence for the next three years so as to grant diplomas to such students as shall complete their work satisfactorily in other medical schools.

FLORIDA

Appropriation for Venereal Disease Work.—The city council of Jacksonville, July 16, appropriated $5,000 to the health department for the work of combating the social evil in the city.

The Cleaning of Pensacola.—Dr. Fletcher L. Tatum, assistant health officer, West Florida, during the last three weeks in July inoculated 1,200 people of Pensacola against typhoid fever. Since May, Dr. Tatum has given 3,300 inoculations against typhoid. He has also inaugurated the cleaning up of the waste places of Pensacola.

Health Conference.—A conference of city health officers from Florida municipalities was held in Jacksonville, August 1 to 3, under the presidency of Dr. William H. Cox, city health officer. About forty were present, and among the principal topics of discussion were: the opportunities and obligations of a city health officer, legal procedure, the rights in health work, the methods and needs for keeping correct statistical records, malarial work as a public health measure, soil pollution work, and the venereal disease problem and its relation to public health.

Personal.—Dr. Henry O. Snow, Tampa, has been appointed head of the bureau of venereal diseases for the state of Florida. This assignment carries with it the appointment as acting assistant surgeon, U. S. P. H. S. Dr. Snow will establish clinics in Tallahassee and other cities of Florida for the treatment and control of venereal diseases.——Dr. H. Mason Smith, superintendent of the Florida Hospital for the Insane, Chattahoochee, has resigned to accept a commission in the United States service and has been succeeded by Dr. William M. Bevis, formerly assistant superintendent of the institution.

ILLINOIS

Licenses Revoked.—At a meeting of the Illinois Department of Registration and Education, held August 19, according to report, the licenses of the five following physicians were revoked: William Lewis LeBoy and James Russell Price of Chicago, Samuel Ringgold Harwood of East St. Louis, Edward E. Rohrabaugh of Hanna City and William L. Owen. The last named is at present serving a term in the Federal Prison at Atlanta, Ga., for illegally prescribing narcotics. Since his conviction in New York his licenses in New York, Pennsylvania, California and now in Illinois have been successively revoked.

INDIANA

Sanatorium Enlarged.—Sunnyside Sanitarium, near Oaklandon, is to be enlarged by a at least sixty-five beds for tuberculous patients. Sixty-five soldiers have been returned to Marion County from training camps throughout the country and more than 5,000 cases of the disease are known to exist in the county. Every effort will be made by the Marion County Society for the Prevention of Tuberculosis to care for these people.

Personal.—Dr. Davis L. Field, Jeffersonville, has been appointed physician at the Indiana Infirmary.——Dr. Cyrus A. Gardner, Kendallville, has been appointed local physician for the Fort Wayne and Northwestern Railroad succeeding Dr. Harold O. Williams.——Dr. John C. Sharrer, Francesville, while driving over a grade crossing at Galien, Mich., July 30, was struck by a Michigan Central train, his automobile was destroyed and he was thrown a distance of more than 100 feet, and on account of the serious nature of his injuries was taken to Mercy Hospital, Benton Harbor.

LOUISIANA

State Board Report.—The biennial report of the Louisiana State Board of Health for 1916-1917, made by Dr. Oscar Dowling, Shreveport, president, March 30, calls attention to the imperative need for the further inspection of important activities, such as the statistics of births, deaths and reportable diseases, the sales of caskets, the control of tuberculosis and other preventable diseases, and the venereal peril. The records of typhoid fever for 1917 show a slight increase over the previous year—due possibly to the greater return of certificates during the latter period—and an increasing demand for antityphoid inoculation. The report also details the excellent results of the extensive community campaigns which were introduced in the state through the help of the Rockefeller Sanitary Commission and the International Health Board. The principal recommendations of Dr. Dowling are that adequate funds be provided, a minimum of 12½ cents per capita, to operate more effectively the thirteen bureaus of general administration, food and drugs, laboratories, finances, vital statistics, child hygiene, public education, preventable diseases, venereal diseases, tuberculosis, sanitary inspection, sanitary engineering and oil inspection; that the service be placed on a merit basis with tenure of office dependent on efficiency; that the state be divided into health districts, preferably eight, with a whole-time officer as director of each appointed by the state board of health, this work requiring the appropriation of $30,000; that the model law be enforced; that persons suffering from communicable diseases, be isolated; and that more generous appropriations be made for hospitals for the insane and for the state tuberculosis sanatoriums. For this and the other work of the board an appropriation of $274,074.96 is asked. The report is illustrated and contains morbidity and mortality tables, and reports, also in tabular form, of the sanitary inspections undertaken by the board during the biennium.

MARYLAND

Outbreak of Typhoid.—There have been eighteen or twenty cases of typhoid fever in the upper part of Anne Arundel County during the past week, due to infected milk. It seems that a workman in a dairy serving the community was ill of typhoid, but his case was diagnosed as malaria. His daughter, who also was ill, was thought by her physician to have been suffering from malaria.

Personal.—Dr. George Edward Lancaster, Baltimore, formerly resident physician at the Dr. Lewis H. Gundry Sanatorium, Relay, has been sent to Fort Slocum, N. Y., for duty. ——Dr. Harry H. Johnson, Baltimore, superintendent of Sydenham Hospital, has resigned and expects to leave immediately for Fort Oglethorpe, Ga.——William Drew has been promoted to the position of superintendent of pasteurization in the health department of Baltimore, succeeding Charles McLaughlin, resigned.

Morgue Overcrowded.—Owing to the overcrowded condition of the Baltimore morgue by deaths from heat, Health Commissioner John D. Blake reported to Mayor Preston that he feared an ice famine would seriously interfere with the successful operation of the temporary morgue on President Street. It is not equipped with a cold storage plant and has facilities for only seven bodies. Dr. Blake recommended the erection of a modern plant, with a room for the use of coroners, facilities for seventy-five or 100 bodies, and a room equipped for making necropsies.

New Home for Soldiers.—Through the kindness of Dr. Howard A. Kelly, 160 acres of ground has been set aside on the Severn River as a convalescent camp for soldiers. This camp has been named Camp Purnell, in honor of Colonel Purnell of Fort McHenry. The sick and wounded soldiers from overseas who are brought to this district and placed at Fort McHenry, will, when convalescent, be sent to this spot to regain health and strength. Camp Purnell will likewise be opened to convalescents from all army and naval camps and stations in this section who pass through the wards at Fort McHenry.

MASSACHUSETTS

Personal.—Dr. John F. O'Brien, Boston, has been appointed chairman of the board of trustees of the Municipal Consumptives' Hospital.——Dr. Marion Shepard, Northampton, has been appointed associate professor of physical education and medical adviser of women in the University of Pittsburgh, and will assume the duties of her new position in September. ——Dr. Herbert F. Gammons, Boston, has been appointed assistant medical directer of the Minnesota State Advisory Committee and will take charge of the Deerwood Tuberculosis Sanatorium.——Dr. Merrill E. Champion, Wollaston, state district health officer, has been appointed director of the division of hygiene of the state department of health.

NEW YORK

State Laboratory Association.—The second annual meeting of the State Association of the Public Health Association was held recently and the following officers were elected: president, Dr. Warren B. Stone, Schenectady; vice president, Dr. J. S. Lawrence, and secretary-treasurer, Dr. Howard I. Davenport, Auburn.

Personal.—Dr. James B. Conant, Amsterdam, who has been under treatment at the Amsterdam Hospital since August 2 on account of an infected wound of the finger, is reported to be canvalescent.——Dr. Franklin C. Gram, health commissioner of Buffalo, recently celebrated the twenty-fifth birthday of his connection with the staff of the health department. ——Dr. Joseph C. Palmer, health director of the public schools in Syracuse, expects to sail for Italy this month as a member of the American Commission on Tuberculosis in Italy.——Dr. Mary E. Walker, Oswego, is reported to be dangerously ill at her home.——Dr. M. D. Dickinson has been appointed health officer of Troy, succeeding Dr. Calvin E. Nichols, who has resigned after holding the position for eighteen years.

New York City

Nurses' Training Schools Opened.—A nurses' training school is to be opened in September as an adjunct of the United States Base Hospital No. 1, The Bronx, and another in connection with the United States Debarkation Hospital at Fox Hills, Staten Island. These are the second and third nurses' training schools to be established in connection with base hospitals in this country. The first was opened at Spartanburg.

Personal.—Dr. David Hershfield was seriously injured in an automobile accident at Montrose, and is under treatment at the Peekshill Hospital.——Major Edward W. Lee, M. C., U. S. Army, who is on duty in Porto Rico, is reported to be seriously ill with typhoid fever.——Lieut. M. Philip Cowett, house physician at Bellevue Hospital from 1915 to 1917, has been awarded the *Croix de Guerre* by the French government for gallantry in battle.——Dr. Frank J. Monaghan of Brooklyn has been appointed acting deputy commissioner in charge in Brooklyn.

Course for Laboratory Aids.—New York University and Bellevue Hospital Medical College have arranged a special three months' course for those who wish to qualify as laboratory assistants in bacteriologic work for immediate service in camps and hospitals. The Surgeon-General's Office has issued a call for those assistants. The course is arranged by Dr. William H. Park, director of laboratories for the health department, and Dr. Anna W. Williams, assistant director. It will open September 4. The fee is $75; a few scholarships may be available. Preference will be given to college women with some preliminary training. Applications may be made to Dr. Park at the New York Department of Health.

Yonkers Convalescent Home for Government.—Construction work is to be started in a few weeks on the convalescent home for which provision was made in the will of Mrs. Caroline Neustadter. Mrs. Neustadter bequeathed $1,000,000 for this purpose, of which $250,000 is to be used in the construction of buildings, and the income from the remainder is to be used for maintenance. The trustees announce their intention of offering the institution to the government when it is completed and fully equipped to be used as a hospital for officers. The plans provide accommodations for seventy-five patients, but it will be possible to care for a much larger number.

Influenza Arrives in New York.—Two steamships, one from Norway and one from another Scandinavian port, arrived in New York, August 14 and 15, having on board a number of cases of so-called Spanish influenza. The ships were not held up at quarantine, as influenza is not a quarantinable disease and such a procedure would interfere to too great an extent with shipping to be adopted with any affection other than those diseases generally recognized as proper diseases against which to declare marine quarantine. The United States Public Health Service has received full reports of the presence of Spanish influenza in New York but will take no steps to establish a quarantine against the disease. The New York Department of Health, following a conference on the subject, has inaugurated a campaign against influenza and all similar diseases. Every ship which brings a case of influenza will be registered with the board of health and the health inspectors will obtain from the immigration authorities the destination of the cases reported.

NORTH CAROLINA

Typhoid.—There are said to be sixteen cases of typhoid fever in Forsyth County, eleven in Broad Bay Township. This epidemic is attributable to bad sanitary conditions, mainly, open unsanitary privies.——A typhoid epidemic is reported among the German sailors and civilians at the Internment Camp, Hot Springs, where it is said there have been 150 cases with eleven deaths. Shallow wells are said to be responsible for the infection.——During the three weeks in July there were 220 cases of typhoid fever reported, bringing the total for the first three weeks of the month up to 596 cases. The state board of health is furnishing typhoid vacvine free to all who apply for it. Mecklenburg County leads the state in the number of cases of typhoid.

Failure to Report Disease.—During the past month more than twenty physicians have been prosecuted for violations of the state quarantine laws in failing to report communicable disease. The requirements of the law are plainly stated in the act itself, and every practitioner has had placed in his hands copies of the statute during the last year, and every effort has been made by the authorities to secure reports without pre- senting physicians to the courts. The importance of the sub- ject in relation to the draftees from every community report- ing to the various mobilization camps throughout the nation renders more imperative than usual the enforcement of the laws requiring the reporting of all contagious and infectious disorders. The fines assessed were very nominal for first offenses, totaling in twenty-one cases $59.01, but it is under- stood the trial judges have announced their intention to make second or later convictions yield much larger sums for the school funds which receive the income from fines in criminal cases in this state. The net cost of the prosecution of the cases was $320.

PENNSYLVANIA

Course in Public Health Nursing.—Beginning October 1, the Carnegie Institute of Technology announces that a four-year course in public health nursing will be opened by the general science department at the Margaret Morrison Carnegie School. The schedule of studies includes English, physics, chemistry, biology, physiology, foods, hygiene and physical training in the freshman year; microbiology, sanitary science, public health, industrial hygiene, public health nursing, dietetics and social work in the sophomore year, and theoretical and practical instructions in nursing for those who satisfactorily finish the first two years' work, in the junior and senior years. The graduates may be expected to find employment in school inspection, factory and industrial, public health and welfare work.

Philadelphia

Personal.—Dr. Robert Howland Chase has resigned as medical superintendent of the Friends' Hospital, Frankford (Frankford Insane Asylum), after a service there of twenty-five years. Dr. Albert C. Buckley, who became assistant at the Friends' Hospital in 1906 and who was promoted to clinical director two years ago, has been made medical superintendent to succeed Dr. Chase.

Campaign Against Tuberculosis.—Plans have been completed for a campaign of education among negroes in Philadelphia to check the spread of tuberculosis. The work will be under the direction of physicians and nurses in cooperation with the Philadelphia Tuberculosis Committee. The campaign was opened with a mass meeting at the McCoach Playground, Catherine and Seventeenth Streets. The members of the committee in charge of the work are: Isadore Martin, Dr. T. Spotuas Burwell, A. L. Manley, Mrs. A. W. Blackwell and Dr. Algernon B. Jackson.

SOUTH CAROLINA

Hospital Items.—The board of governors of the Greenville City Hospital, finance committee of the city council and the mayor of Greenville held a conference, July 29, and decided that the work on the new hospital building be started at once. The building will cost $130,000, will be an addition to the present structure, will be three stories in height, practically fireproof, and will contain about forty rooms for the accommodation of patients.——The Union Hospital, Union, was incorporated, July 18, with a capital stock of $1,800.

SOUTH DAKOTA

Reorganization Meeting.—The Third District Medical Society, which was divided at the last state meeting, held at Mitchell in May, met for the purpose of reorganization, at the Lake Madison Chautauqua Grounds, July 31, under the presidency of Dr. Burtis T. Green, Brookings. Dr. John C. Baker, Ramona, is secretary of the association which includes the counties of Beedle, Kingsbury, Brookings, Miner and Lake.

Personal.—A farewell dinner was given at Sioux Falls to Capt. William F. Keller and Lieut. D. Willard Craig, who have entered the military service. The mayor presided as toastmaster. Captain Keller was for twelve years city health officer.——Dr. William M. Housman, Dell Rapids, was seriously injured by the overturning of his automobile, near Dell Rapids, July 9. His injuries consist of a punctured right lung, three fractured ribs, and a number of contusions about the head and body.

UTAH

Personal.—Dr. Ephraim G. Hughes, consulting surgeon of the State Memorial Hospital, Provo, has resigned.——Dr. Edwin M. Neher, Price, chairman of the local medical advisory board who is leaving the state, was the guest of honor at a dinner, July 31.——Dr. Ephraim G. Gowans, Salt Lake City, was elected chairman of the child welfare committee of the State Council of Defense at its meeting, August 2.

WISCONSIN

Quarantine for Infantile Paralysis.—Platteville has been quarantined on account of the presence of infantile paralysis in the city. Children under 16 years of age are forbidden to leave their home premises, and no children are permitted to leave or enter the city until notification by the authorities.

Site for Wolcott Statue Selected.—The bronze equestrian statue of Dr. Erazmus B. Wolcott, for the erection of which his widow provided $31,500 in her will, is to be erected in Lake Park, Milwaukee, near the concrete bridge on the lake drive. Dr. Wolcott was a pioneer resident of Milwaukee, and surgeon-general of the state during the Civil War.

Personal.—Dr. Herbert L. Wright, for three years health commissioner of Kenosha, has resigned to accept a similar position at Lansing, Mich.——Fond du Lac County Medical Society tendered a supper, July 30, to Drs. Frederick M. Harris, Fond du Lac, and John M. A. Baasen, North Calvary, who are ordered to duty at New Haven, Conn., and Fort Riley, Kan., respectively.

Health Conference.—The fourth biennial conference of health officers of Wisconsin was held in Madison, August 7 and 8. Among the more important subjects discussed were serum and vaccines, public health work, the guarding of health in war times, water supplies and sewage disposals, summer resort sanitation, industrial waste problems, institutional treatment for venereal disease control, open air schools, nuisances and their control by the local health officer, health officers who are not physicians, health work in townships and laboratory service of the state, necessary activities of boards of health, the power to enforce quarantine, how and where a city or village can be in a sanitary condition, and the control of infantile paralysis.

CANADA

Public Health Notes.—Dr. Charles J. C. O. Hastings, M.O.H., Toronto, is asking the board of health of that city to undertake a survey of citizens to ascertain the prevalence of tuberculosis in Toronto, and to see if present methods of control are adequate and if the money is being spent to the best advantage. Nine years ago there were six institutions in Canada caring for the tuberculous. The accommodation was then 350 beds; now it is about 3,000 beds. It cost about $150,000 nine years ago to maintain those institutions, whereas at the present time about $900,000 is spent on maintenance, apart from that spent by the Soldiers' Aid Commission. Three million dollars have been spent in plants in Canada which is considerably less than that spent on ordinary hospitals with similar accommodation.

Hospital News.—A new hospital is being built at Kannaskis, near Banff, Alta. It is to cost $400,000, of which the Dominion government and the Province of Alberta will each pay one half, and will accommodate 300 patients.——The Saskatchewan Hospital Unit is now stationed in Lorraine, France.——Winnipeg General Hospital is asking the city for $60,000 to meet urgent expenses.——The wards in the Isolation Hospital, Toronto, are no longer free. Rates in the public wards are $1.25 a day; semiprivate, $2, and private wards, $3.——The revenue of the Winnipeg General Hospital last year was $417,292, and the expenditures, $476,507. There were 4,387 general operations, and 22,130 in the roentgen-ray and the hydrotherapeutic departments.——The MacLaughlin Companies, Oshawa, Ont., have donated a maternity hospital to the town. It is called the Llewellyn Maternity Hospital.

GENERAL

Dairy Food Convention.—The twenty-second annual convention of the Association of American Dairy Food and Drug Officials will be held in Chicago, August 27 to 30. The principal sessions will be held at the Congress Hotel, and the chief subjects for discussion will be the safeguarding of the country's food supply, food scarcity, high prices, and the temptation offered to unscrupulous dealers and manufacturers to place on the market unhealthful substitutes and inferior products.

Five Conferences on Tuberculosis.—The National Tuberculosis Association announces that it has plans under way for five conferences covering the country in geographic sections to consider practical measures for coping with tuberculosis as a war problem. The questions discussed will be means of providing adequate care for the thousands of soldiers and sailors already discharged from the Army and Navy on account of tuberculosis, and the still greater number rejected in the draft for the same reason, and also the question of educating the civilian population more fully regarding tuberculosis during the war and thus combating its further spread in the community. The conferences are to be held as follows: Spokane, Wash., September 27-28; Denver, October 2-4; Birmingham, Ala., October 11-12; Pittsburgh, October 17-18; Providence, R. I., October 25-26. The association is making efforts to have the attendance at these conferences as large as possible. All health officers, dispensary physicians, visiting nurses and others interested in the problem of tuberculosis are urged to attend.

FOREIGN

Deaths in the Profession Abroad.—Dr. A. Key-Aberg, professor of legal medicine at the University of Stockholm, and the only regular professor of this branch of science in Sweden, which he taught in connection with pathologic anatomy. He had published important works on sudden death from arteriosclerosis, child murder, etc.——The *Hospitalstidende* mentions the death of **M. Wilms**, the successor of Trendelenburg in the chair of surgery at Leipzig and later of Czerny at Heidelberg, aged 50.

Oil from Marshes.—The *Nederlandsch Tijdschrift* states that R. Francé, the biologist, living in Munich, has succeeded in expressing the oil from the cells of a low organism which lives in stagnant waters. The oil is said to have a melting point of 40 C., and the chemist Buchner affirms that it is the equal at least of coco oil. It is estimated that 100,000 kg. of good oil can be obtained per month in this way, and ichthyol, silicium and a nitrogenous fertilizer can be obtained from the waste.

Sanatorium and Hospital for Refugee Children.—A villa at Posillipo has been fitted up for a hospital and sanatorium for the refugee children in the province of Naples. It is in charge of Prof. G. Tropeano, and provisions have been made for ten pavilions. One, for observation, has 25 beds, the eye pavilion has 40 beds, the surgical 80, the skin diseases pavilion 40, the gastro-intestinal 100 beds and the diseases of the chest 80 beds. There is a station for heliotherapy, equipped with 100 beds, and a seacoast station, in connection, with 200 beds. At present 250 children are housed in the institution and others in the annexed stations.

School for Training in Infant Welfare Work.—The commencement exercises of the Ecole de puériculture at Bordeaux, France, recently graduated thirty-seven women who had completed the course. The school trains for positions as superintendents, assistants, visitors, inspectors and other positions in the general system of welfare work for young children, such as day nurseries, milk stations, nursing consultations and quarters where mothers working in factories can leave their children and come to nurse them. The school plans further to train in mothercraft, mothers, young girls, nurse girls and others. The school is under the patronage of the Union des femmes de France.

Extra Rations for the Sick in Norway.—In both Denmark and Norway, the sick are able to obtain extra rations on a medical certificate. In Norway the matter has been simplified by having a list of the different foods in question printed on the ration card, and the physician has merely to inscribe the quantity. The physicians have already been informed by a circular from the government for what diseases certain food can be allowed in extra ration. On the ration card he has merely to state that the disease is acute or chronic. For chronic disease the certificate is good for twelve weeks; for acute, merely during the period he specifies. All the certificates are to be examined to protect against abuses, to prevent one person getting certificates from several physicians, or one physician being too prodigal in giving out certificates. The authorities also will seek to prevent a person's getting extra rations under different claims for different diseases.

SOUTH AND CENTRAL AMERICA, MEXICO AND WEST INDIES

Annual Meeting of Brazilian Neurologists and Psychiatrists.—The date, November 3, has been appointed for the second Congreso Brazileiro de Neurologia, Psychiatria e Medicina Legal, which is to convene at São Paulo this fall. Prof. F. da Rocha of S. Paulo is to preside; Dr. E. Vampré is the secretary.

Peru to Have a Sanatorium for the Tuberculous.—Our Lima exchanges give the details of the first antituberculosis sanatorium to be constructed in Peru, for which plans are now being made by the Sociedad de Beneficencia of Lima, a sum of about $50,000 having been bequeathed to the society for the purpose some years ago. A sanatorium with pavilions for paying and for charity patients is planned, and it is proposed to locate it near the city of Jauja as suggested by the testator. This site is not regarded by the commission in charge of the matter as particularly well chosen. As natural drainage is out of the question, the septic tank system is to be installed. The water supply will be by wells. The buildings now planned will cost considerably more than twice the amount of the bequest, so that only the free pavilions are to be erected at first.

BUENOS AIRES LETTER

Buenos Aires, July 9, 1918.

South American Conference on Hygiene, Microbiology and Pathology

The second biennial reunion of those interested in these branches of science is to be held at Rio de Janeiro, October 15 of the current year, according to the announcement of the committee of organization. The first conference of the kind convened at Buenos Aires in September, 1916, and a volume of the transactions has been published. All the countries in South America have been invited to the approaching meeting.

Conferring of Degrees and Prizes

The medical faculty of the university here at the annual exercises conferred degrees and awarded the following prizes: The Faculty prize for the best thesis was given to Dr. A. Gutierrez, a 1916 *ex-alumno,* for his thesis on the topographic anatomy of the peritoneum; the E. Wilde prize for the best thesis on legal medicine was awarded to Dr. O. Loudet, a 1916 *ex-alumno,* for his thesis on "Passion in Crime." The prize for the best work published in the country was conferred on Dr. P. Escalada for his work on radium therapy, entitled "Curoterapia." The gold medal awarded by the school of pharmacy was given to señorita Lola Pastorelli, and *diplomas de honor* were given to A. Arnaboldi, Sara L. Irigoyen, Maria Deco and Alberto Dondiz. The recipients of the gold medal awarded by the school of odontology were the *ex-alumnos* L. T. Larequi and J. P. Icart, with a *diploma de honor* given to M. P. Meurville. The school of obstetrics conferred *diplomas de honor* on Margarita D'Abbondio, Juana de Franco and Elisa B. de Rodriguez.

The gold medal awarded by the medical school for the 1916 course was given to Dr. O. M. Pico, and *diplomas de honor* were given to Drs. A. J. Vitale, C. A. Correas, R. B. Moron, Virginia Peradotto, A. Astiz, Sara Satanowsky, J. L. Celazco, E. Icasati and D. B. Brian.

The Campaign Against Cancer

Dr. Angel H. Roffo, who has specialized in experimental research on cancer, delivered a lecture, July 1, at the Instituto Popular on the anticancer campaign. He described his own extensive and prolonged investigations on the transplantation of tumors of white rats, and his attempts at chemotherapy, commenting on the scanty local initiative devoted to this object. The Academia de Medicina began the construction of an institute for cancer research, with a small hospital annexed, but its construction has been suspended. The Departamento Nacional de Higiene maintains a cancer section, in charge of Roffo, in the Instituto Nacional de Bacteriologia.

LONDON LETTER

London, July 16, 1918.

Trinitrotoluene Poisoning

The report of the factory inspectors on trinitrotoluene has just been issued. The investigations into this form of poisoning made during the war have resulted in a gratifying decrease in the number of cases. A remarkable feature of the disease is the length of time that may elapse between absorption of the poison and the development of jaundice or anemia. The most extreme case reported was that of a woman, who, after two months' work in processes in the manufacture of trinitrotoluene, was transferred to another department. Over seven months later a spanner fell on her head. Toxic jaundice developed a week later, and proved fatal in a fortnight. Skin absorption of trinitrotoluene is a difficult condition to overcome. Gloves were provided and worn by the million, but they never adequately protected the skin, and eventually were regarded more as a source of danger than a safeguard, and their use given up. It was the same also with the continuous wearing of respirators, which has proved an impracticable remedy; but it is not so, fortunately, with regard to exhaust ventilation locally applied.

Dearth of Drugs

At the annual meeting of the British Pharmaceutical Society, the president, Mr. C. A. Hill, dealt with the supply of drugs in war time. In some instances, he said, stocks are becoming dangerously low—in fact, approaching exhaustion—and are not replaceable without government assistance. Among the drugs referred to were: Asafetida: Almost a famine prevails in this article, as with most others from the Persian Gulf. Calumba root: There is at present a famine in this drug, and anything available would fetch more than twelve times the prewar price. Cascara sagrada: Stocks have steadily diminished, and the price is steadily advancing. Ergot: Little is coming in from Russia, and the market is now dependent on Spain and Portugal. Galbanum: This is now unobtainable. Liquorice root: The present price is fourteen times as great as the prewar price, and the quality is much inferior. Balsam of Tolu: The shipping difficulty is answerable for the scarcity. Benzoin: Every parcel which arrives realizes extravagant prices. Buchu leaves: The prices realized are exorbitant. Jalap: Owing to the scarcity, prices have quadrupled since the war. Sarsaparilla: Owing to its bulky nature, shipping space can seldom be secured. Turmeric: The market is bare of all grades. The following drugs from enemy countries are quite unobtainable: storax, hellebore, Austrian stramonium, uva urst, scammony, Turkish opium, Turkish tragacanth and Bulgarian attar of roses. Fortunately, the cultivation of certain drugs in this country has furnished adequate supplies; these drugs are colchicum, digitalis, poppy heads, belladonna and henbane. Referring to the scarcity of saccharin, the president said that as the article was controlled by the government there was no safety valve such as would be provided by the law of supply and demand in the form of an increased price. The reply given by the French government to the British government in answer to an inquiry regarding the reasons which had led to the ban on saccharin foodstuffs in France was to the effect that where sugar entered into an article for other than mere sweetening purposes it was not considered desirable in the public interest that it should be omitted and its place taken by some less useful substitute, plus the small quantity of saccharin necessary for sweetening.

American Hospitals in England

The accommodation for American wounded in England is constantly increasing. Near Southampton, Sarisbury Court, a military hospital for nearly 3,000 men is being erected. The old Manor House will be the center of 10 acres of huts. The old vegetable garden will be intensively cultivated so as largely to supply the hospital. The ambulances which meet the hospital ships will carry the wounded to a very pleasant estate. In London the Army Council has arranged to take over the southern and northeastern hospitals of the Metropolitan Asylums Board for Americans. In Portsmouth the corporation has agreed to hand over the local mental hospital for the same purpose.

PARIS LETTER

Paris, July 11,, 1918.

Death of Professor Grasset

Dr. Joseph Grasset, honorary professor in the Montpellier Medical Faculty, has recently died, aged 69. Grasset was born in Montpellier in 1849, studied, worked and died there. He was a hospital intern in 1871, assistant in therapeutics in 1875, and professor in 1881. In 1886 he assumed the chair of clinical medicine which he held for the remainder of his active life as a teacher. Grasset early began to specialize in diseases of the nervous system. In 1878, he published his "Traité pratique des maladies du système nerveux," which went through four editions (the fourth in collaboration with Professor Rauzier appeared in 1894). Later he took up the study of psychology, normal and morbid. In 1904 he published a study, "Spiritisme devant la science"; in 1908, "L'Occultisme hier et aujourd'hui" (translated into English). He also published a series of works on the responsibility of criminals, notably a book entitled "Demi-fous et Demi-responsables," (also translated into English). During the later years of his professorial work he taught pathology and general therapeutics, and published two voluminous treatises, "Physiopathologie clinique" in three volumes (1910-1912) and on "Thérapeutique générale" in two volumes (1913-1914). Professor Grasset was national associate of the Académie de médecine since 1898.

Ear Disturbances of Military Aviators

Dr. A. Castex recently reported the results of his examination of aviators at the military hospital at Villemin, at Paris and at the *Centre d'aviation* at Borget. During the ascent the disturbances of which the aviator may be the victim are characteristic of a general fatigue due to the rapid fall of atmospheric pressure. In full flight, at a height of about 5,000 meters, he suffers from pain in the ears, fulness of the head, somnolence and apathy. During the descent, there is again pain and buzzing in the ears, which cease as soon as the aviator makes a landing. Finally, after landing, he may have transitory deafness and sometimes a reeling gait. Otoscopy showed that during the descent a congestion of all the auditory apparatus is produced.

In some aviators a progressive diminution of labyrinthine perception is noted. At times, latent disturbances in the superior respiratory tract may be adjuvant causes of the deafness (tubotympanic catarrh, the beginning of an otosclerosis, hypertrophic rhinitis, malformation of the septum, adenoids and enlarged tonsils). Most of these disturbances are due to the changes in atmospheric pressure, caused by the differences in air pressure, from which the aviators will be relieved if, during the ascent, they will make use of Valsalva's experiment and during the descent, of Toynbee's.

Factitious Mumps

Drs. F. Trémollières and L. Caussade called the attention of the Société médicale des hôpitaux de Paris to a little known method of simulating mumps which they had occasion to witness among the soldiers of a regiment of Moroccan tirailleurs. In order to produce a swelling in the parotid region the soldier inflated his cheeks forcibly by pinching his nares and placing his hand over his mouth.

Obligatory Revaccination of Public Officials

A decree has been issued by the minister of the interior which makes it obligatory on all persons—whatever the age —who are attached to the permanent, temporary or auxiliary personnel of the administration of the state, and of all the subordinate services, to be vaccinated or revaccinated if they cannot, within ten days at the latest, furnish a medical certificate stating that they had been vaccinated successfully within the preceding five years. Infraction of this decree is punishable by a fine, without prejudice of the *sanction disciplinaires.*

Prize Awarded by the Academy of Sciences

Among the prizes offered by the Academy of Sciences is the Montyon prize, consisting of 2,500 francs. This prize has been awarded to Drs. Henri Guillemard and André Labat, of the Medical Faculty of Paris, for their research work on asphyxiating gases.

Death of Dr. Bonnaire

Dr. E. Bonnaire, a member of the medical faculty of Paris and obstetrician to the hospitals, died at the age of 60 years from a malady contracted on a tour of inspection of the *pouponnières d'usines de guerre* (arrangements for children whose mothers are working in war factories).

Personal

At the meeting of July 30, the Académie de médecine elected a vice president for 1918 to succeed the late Professor Pozzi. Dr. Delorme, médecin inspecteur général of the Service de Santé militaire and director of the Ecole d'application de médecine et de pharmacie militaires of Val-de-Grâce, was elected to this office. Conforming to the regulations of the Academy, the vice president succeeds to the presidency the following year.

Marriages

CAPT. ALFRED ISADOR LOWENTHAL, M. R. C., U. S. Army, New York City, on duty with the U. S. Base Hospital at Edgewood, Md., to Miss Dora Bernice Bryfogle of East Akron, N. Y., August 6.

LIEUT. EMMETT CHARLES SCHOOLFIELD, M. R. C., U. S. Army, Cleveland, on duty in Denton, Texas, to Miss Blanche M. Featherstone, also of Cleveland, recently.

LIEUT. JOHN JOSEPH MCDERMOTT, M. R. C., U. S. Army, Patchogue, L. I., N. Y., to Miss Margaret Louise Feiner, at Ann Arbor, Mich., August 14.

FRANCIS MANLY STUMP, San Bernardino, Calif., to Miss Edith Helen Miller of Loma Linda, Calif., June 30.

WILLIAM LEIGH WILLIAMSON, Bayonne, N. J., to Miss Mary T. O'Neill of West Hoboken, N. J., August 15.

JAMES CLAUDE KESSLER, Iowa City, Iowa, to Miss Laura Ethel Sayre of St. Charles, Iowa, June 27.

CHARLES HENRY PEETE to Miss Lucy Pettway Jones, both of Warrenton, N. C., July 3

Deaths

Luther Halsey Gulick, New York City; New York University, New York City, 1889; aged 52; an associate Fellow of the American Medical Association; for many years physical director of Y. M. C. A., in Michigan and Massachusetts and in the public schools of New York City; editor of *Physical Education,* from 1891 to 1896; of the *Association Outlook,* from 1897 to 1900; of the *Physical Education Review,* from 1901 to 1903, and of the *Gulick Hygiene Series;* a member of the Olympic Games Committee in 1906 and 1908; consultant to the New York Hospital for Deformities and Joint Diseases; president of the American Physical Association, from 1903 to 1906; of the Public Physical Training Society, from 1905 to 1908; and of the Playground Association of America from 1906 to 1909; an authority on physical training and author of many books and monographs on the subject; died at his summer home in South Casco, Maine, August 13.

William Houston Greene, Philadelphia, Jefferson Medical College, 1873; aged 64; a Fellow of the American Medical Association; assistant professor of chemistry from 1870 to 1877; and demonstrator of chemistry from 1875 to 1877 in his alma mater; demonstrator of chemistry in the University of Pennsylvania, from 1879 to 1880; professor of chemistry of the Central High School, Philadelphia, from 1880 to 1892; author of many works on chemistry and American editor of Paul Berts' First Steps in Scientific Knowledge; a chemist of international repute; died in his summer home, Wenonha, N. J., August 8, from heart disease.

Frederick Lyman Hills, Pittsford, Vt.; College of Physicians and Surgeons in the City of New York, 1892; aged 47; a Fellow of the American Medical Association, and a member of the American Medico-Psychological Association; and National Association for the Study and Prevention of Tuberculosis; who was appointed first assistant to the New Hampshire Hospital, Concord, N. H., in 1897, and was later one of the commission to select this site for the State Sanatorium, and later in 1907 became superintendent of the State Sanatorium, Rutland, Mass., and in 1910 of the Maine State Hospital, Bangor; died in New York City, July 29, from pneumonia.

Jacob H. Gallinger, Concord, N. H.; New York Homeopathic Medical College, 1868; aged 81; a practitioner of Concord from 1862 to 1865; surgeon-general of the state with rank of brigadier-general in 1879 and 1880; a member of the state legislature from 1872 to 1873, and in 1891; state senator from 1878 to 1880 and during the last two years president of the senate; a member of the forty-ninth and fiftieth Congresses and United States Senator from New Hampshire since 1891; died in the Franklin (N. H.) Hospital, August 17, from arteriosclerosis.

William Phillip Mathews, Richmond, Va.; Medical College of Virginia, Richmond, 1890; aged 50; a Fellow of the American Medical Association; a member of the Southern Surgical and Gynecological Association; professor of anatomy and orthopedic surgery in his alma mater; orthopedic surgeon to the Old Dominion Hospital, Richmond; president of the Board of Health of Manchester, Va., during 1900 and 1901; died at his home, July 25.

Capt. Paul Eugene Betowski, M. R. C., U. S. Army, Waverly, N. Y., Long Island College Hospital, Brooklyn, 1907; aged 37; a Fellow of the American Medical Association; from 1912 to 1917 surgeon-in-chief of the New York State Soldiers and Sailors Home, Bath; attached to the Six Hundred and Sixty-Sixth Aero Squadron, American E. F., France; died, July 2, from injuries due to an automobile accident.

John Shields McGinness, Lock Haven, Pa.; University of Pennsylvania, Philadelphia, 1864; aged 77; assistant surgeon of the Two Hundred and Seventy-Seventh and One Hundred and Ninety-Ninth Pennsylvania Volunteer Infantry, and later surgeon of the One Hundredth New York Volunteer Infantry, and Thirty-Ninth Illinois Volunteer Infantry during the Civil War; died at his home, August 8, from heart disease.

Capt. John Carmichael, C. A. M. C., Collingwood, Ont.; Queens University, Kingston, Ont., 1915; aged 29; who had been in France for nearly two years, and was attached to No. 8 Canadian Field Ambulance; while on duty at an advanced dressing station, and returning from a visit to the regimental aid post of one of the battalions in the trenches, April 4, was wounded and died eight hours later.

Frederick Nelson Tannar, Baltimore; Maryland Medical College, Baltimore, 1900; aged 43; professor of pediatrics and medical jurisprudence in his alma mater; attending physician to the Franklin Square Hospital, and Robert Garrett Hospital for Children; died at the Church Home and Infirmary, Baltimore, August 5, after a surgical operation for disease of the intestine.

Helen Crittenden, Evanston, Ill.; Northwestern University Woman's Medical School, Chicago, 1894; organizer and director until her death of the Social Service Registration Bureau of the Chicago Bureau of Charities; president of the Social Service Club in 1913, and a lecturer in the Chicago School of Civics and Philanthropy; died at her home, August 15.

August H. Rickoff, Chamois, Mo.; St. Louis College of Physicians and Surgeons, 1893; aged 54; a member of the Missouri State Medical Association; coroner of Osage County; local surgeon for the Missouri Pacific System, and representative from Osage County in the forty-ninth General Assembly; died at his home, August 4, from cerebral hemorrhage.

Edgar John Leary, Sudbury, Ont.; University of Toronto, Ont., 1912; aged 31; who had seen two years' service in France as a medical student, and later was a member of the staff of the Mimico, Ont., Hospital for the Insane, and then entered the service of the Canadian Copper Company, was drowned in Meat Bird Lake, near Sudbury, Ont., August 8.

Samuel Frederick Anderson, Brooklyn; Long Island College Hospital, Brooklyn, 1890; aged 53; a member of the Medical Society of the State of New York; assistant laryngologist to the Methodist Episcopal Dispensary; died at his country home, Seaside Park, N. J., August 5, from acute gastritis.

Joseph Edward Ziliak, Evansville, Ind.; University of Michigan, Ann Arbor, 1898; aged 40; local surgeon to the Evansville and Terre Haute Railroad; for several years milk inspector of the city; died at St. Mary's Hospital, Evansville, July 16, a day after an operation for the relief of disease of the stomach.

Lieut. Francis Oral Vicars, M. R. C., U. S. Army, Livingston, Mont.; Chicago College of Medicine and Surgery, 1907; aged 38; was drowned by the overturning of his boat while crossing the Yellowstone River at Carter's Bridge, on his way to the Vicar's ranch, July 23.

Freeman R. Chaffee, Lucy, Tenn.; Memphis, Tenn., Hospital Medical College, 1904; aged 43; a Fellow of the American Medical Association; local surgeon for the Illinois Central System at Lucy; died at his home, August 2.

Lon Naylor, Hickman, Ky.; Louisville, Ky., Medical College, 1898; aged 42; a Fellow of the American Medical Association; and president of the Fulton County Medical Society; died in Denver, July 12, from tuberculosis.

Benjamin F. Green, Hickory, Ky.; St. Louis College of Physicians and Surgeons, 1889; aged 64; a member of the Kentucky State Medical Association; died at his home, near Hickory, July 11, from basilar meningitis.

William Henry Lawrence, Summit, N. J.; New York University, New York City, 1877; a member of the Medical Society of New Jersey; formerly sheriff of Union County, N. J., died at his home, August 5.

Judson Thomas Beall, Akron, Ohio; Starling Medical College, Columbus, Ohio, 1881; aged 60; a Fellow of the American Medical Association; died at his home, August 9, from cerebral hemorrhage.

Charles M. Taylor, Corinth, Miss.; Tulane University, New Orleans, 1892; aged 51; a Fellow of the American Medical Association; died in the Baptist Memorial Hospital, Memphis, Tenn., July 19.

Howard H. Dawson, Phoenix, Ariz.; Denver College of Medicine, 1890; aged 51; formerly local surgeon of the Rio Grande Southern Railroad, at Rico, Colo.; died at his home, August 9.

Frank Albert Crossman, Dorchester, Boston; New York University, New York City, 1882; aged 59; a member of the Massachusetts Medical Society; died at his home, August 5.

William S. Gass, Royal Oak, Mich.; Detroit College of Medicine and Surgery, 1899; aged 44; died at his home, July 30, from carcinoma of the tongue.

Kurre W. Ostram, Quakertown, Pa.; Royal University, Upsala, Sweden, 1888; aged 52; died at his home, March 20, from pneumonia.

John Swiney Amyx, Amsterdam, Mo.; Kansas City, Mo., Medical College, 1896; aged 54; died at his home, June 26.

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

IODINIZED EMULSION (SCOTT) AND CREOSOTONIC (SCOTT)

Report of the Council on Pharmacy and Chemistry

"Iodinized Emulsion (Scott)" and "Creosotonic (Scott)" are proprietary preparations of the Dawson Pharmacal Company, Dawson Springs, Ky. The latter preparation used to be known as "Iodinized Emulsion (Scott) with Hypophosphites, Guaiacol and Creosote." In 1907 these preparations were considered by the Council and found inadmissible to New and Nonofficial Remedies. Examination of the preparations having been again requested, the Council considered them anew because the composition and claims had been changed somewhat and because at the previous consideration no report was published.

The reports which appear below were sent to the Dawson Pharmacal Company for comment before publication. In reply the company offered to revise its claims for the preparations. The Council replied that the report sent explained that both preparations are irrational mixtures, and hence a revision of the claims would not make them eligible for New and Nonofficial Remedies. It advised that publication of the report would be withheld sixty days and that it would be revised if new information or evidence was submitted permitting such revision. After expiration of the stipulated postponement, the Dawson Pharmacal Company wrote that no new advertising matter had been prepared but that the old circulars were not being sent out.

As these irrational preparations were still sold and advertised to the medical profession and presumably used by some physicians, the Council directed publication of its report with this explanation. W. A. Puckner, Secretary.

Iodinized Emulsion (Scott)

The label for Iodinized Emulsion (Scott) declares:

> "Each fluidram contains: Alcohol, m. 4¾; Rectified Ol. of Turpentine, m. 3½; Iodin, gr. ⅛; Phenol, gr. ½; Glycerine and Elixir Lactated Pepsin with Aromatic Oils in the form of a perfect emulsion."

A circular, which gives what is asserted to be the composition of Iodinized Emulsion, declares that, among other ingredients, each fluidram contains "one and three quarters m. Tincture of Iodine." Both the statement on the label that the preparation contains "iodin" and the one in the circular that tincture of iodin is present in the product are incorrect, for the A. M. A. Chemical Laboratory reports that no free iodin could be detected in the preparation, and that it responded to tests for iodid instead.

An advertising circular for Iodinized Emulsion (Scott) makes unwarranted claims for the therapeutic properties of the constituents. For example:

> ". . . the great usefulness of Turpentine in diseases, especially of the Intestinal Infection, such as the Meteorism and Tympanites of Typhoid."

And this absurdity:

> ". . . where Turpentine, Carbolic Acid or Iodine or even Pepsin is indicated, that it will give satisfaction in each and every case."

Iodinized Emulsion (Scott) is not a "pharmaceutical triumph"; it is an irrational mixture—a reminder of a decadent polypharmacy—sold under misleading and unwarranted claims. It is inadmissible to New and Nonofficial Remedies for conflict with Rules 1, 6, 8 and 10.

Creosotonic (Scott)

Creosotonic (Scott), advertised as a "reconstructive tonic" for the tuberculous, according to the label, contains in each fluidram:

"Alcohol, m. 2½; Creosote and Guaiacol sulphonates of each, gr. 1; Compound Hypophosphites, gr. 1 (including Quinine Hypophosphites, gr. 1/36 and Strychnine Hypophosphites, gr. 1/256), with Iodinized Emulsion (Scott) m. 30."

As in the case of Iodinized Emulsion (Scott), the advertising makes exaggerated therapeutic claims for the individual constituents of the preparation and for the heterogeneous mixture of guaiacol and creosote sulphonates, hypophosphites, quinin, strychnin, turpentine, phenol, iodin, "lactated pepsin," etc. Thus, while it is well established that in guaiacol sulphonate and creosote sulphonate the phenolic constituent is bound so firmly that, when administered, but very little is split off in the organism, yet the advertising claims "that the system can be saturated in a shorter time and with smaller doses of creosote and guaiacol sulphonates than with any other form of these drugs" and that (on the false premise that the guaiacol and creosote from these drugs will permeate the tissues of the lungs) "they help to clear up the local infection and thus aid in returning to normal the diseased mucous membrane."

In the advertising pamphlet, following a discussion of the effect of climate and food in the treatment of the tuberculous, we read:

> "While admitting the great importance of the foregoing points, we are firmly of the opinion that proper medication is a great aid in the treatment of pulmonary tuberculosis, and, with this in view, we offer to the profession Creosotonic (Scott) believing that in it we have a superior preparation for this purpose."

This is unwarranted. Of course suitable medication to meet special conditions is proper in the treatment of tuberculosis, but the routine administration of a complex and irrational mixture such as Creosotonic (Scott) is bound to cause inattention to the prime requisites for the proper treatment of the tuberculous—hygienic surroundings and good food.

Creosotonic (Scott) is an irrational mixture, sold under misleading and unwarranted claims. It is inadmissible to New and Nonofficial Remedies for conflict with Rules 1, 6, 8 and 10.

"DEPENDABILITY OF DOSAGE IN TABLETS" —A CORRECTION

To the Editor:—We note with surprise in an article appearing in the department "The Propaganda for Reform" entitled "Dependability of Dosage in Tablets" published in the issue dated July 27, 1918, a reflection on the Tailby-Nason Company which is wholly unwarranted. We feel sure that the reflection resulted through inadvertence in an investigation of fact.

In that article, which treats of the variation of medicinal content in the making of tablets, you include the Tailby-Nason Company, with a number of other corporations as having manufactured tablets found deficient in the above respect. The facts on which your article is based were undoubtedly obtained in part from the report of the Connecticut Agricultural Experiment Station, *Bulletin No. 200,* published under date of December, 1917. Item 11609 on page 167 of *Bulletin No. 200* reads as follows:

> "11609. Calomel Tablets, made by Tailby-Nason Co.; stock of Dr. W. R. Hanrahan, Bristol. Claimed per tablet: Calomel 2 grs. Found: Weights of 18 tablets ranged from 153.2 to 169.5, average, 161.7 mgms. Tablets contained 69.34 per cent. of calomel, or from 1.64 to 1.82, average, 1.73 grs. Tablets deficient in calomel."

As soon as we discovered this item in the above publication, we brought to the attention of Dr. E. H. Jenkins, the director and treasurer of the Connecticut Agricultural Experiment Station, the facts, already known to state officials at Hartford, that the statements in the report as to the Tailby-Nason Company were wholly erroneous, as the tablets in question were not manufactured by the Tailby-Nason Company and we were in no way responsible for them. Dr. Jenkins thereupon published a correction of *Bulletin No. 200,* mailing the same to all persons on his mailing list as follows:

> CORRECTION
>
> It is stated on page 167 of *Bulletin 200* (being the Food and Drug Report of this station for 1917), that the Calomel Tablets numbered 11609 were made by the Tailby-Nason Company. This statement is incorrect and was based on misinformation given to this Station. The name of the manufacturer cannot be ascertained, but the aforesaid company is not responsible for them.
>
> E. H. Jenkins, Director.

We assume that the writer of the article appearing in The Journal did not have the copy of the correction before him. You will doubtless appreciate that the error in your article has resulted in giving wide currency to a story already retracted by Dr. Jenkins and is creating a serious injury to our reputation. We are confident that you will be as anxious to avert this injustice as Dr. Jenkins was, and therefore trust that you will make a prompt retraction of the unwarranted, unjust and erroneous reflection upon the Tailby-Nason Company and will give your retraction as much prominence before your subscribers as you have already given to the article appearing in your publication of July 27, 1918.

Tailby-Nason Company, Frank T. W. Nason, Treasurer,
Boston, Mass.

[Editorial Note.—The letter from the Tailby-Nason Company is self-explanatory. It is greatly to be regretted that the correction sent out by the Connecticut Agricultural Experiment Station was neither sent to, nor brought to the attention of, The Journal until after the article had appeared in this department. The Journal regrets that it has inadvertently done the Tailby-Nason Company an injustice.]

Correspondence

"RECONSTRUCTION AND REHABILITATION OF THE TUBERCULOUS SOLDIER"

To the Editor:—The article by Lieut.-Col. E. H. Bruns of the National Army (The Journal, Aug. 3, 1918, p. 373) on the "Reconstruction and Rehabilitation of the Tuberculous Soldier" presents in an interesting manner the plans of the Army Medical Corps in the matter of rehabilitation and vocational training of this class of disabled soldiers. As this is a matter largely of departmental or possibly governmental domestic policy, as stated by Colonel Bruns, it is not my intention to enter into any discussion of it except to say that if the plan can be carried out it would seem that the Federal Board for Vocational Education and the Bureau of War Risk Insurance would have little opportunity to exercise the functions delegated to them by law after the Army Medical Corps had decided to "order all to tuberculosis hospitals" suffering from that disease, and following it by complete vocational training in the industrial shops which are to be built in connection with the hospitals.

The following paragraph from the article, however, interests me, and my purpose in this letter is to correct a statement made probably unintentionally, but nevertheless in ignorance of the facts and the law. Colonel Bruns writes:

> The Bureau of War Risk Insurance of the Treasury Department attends to the financial side, for as soon as a tuberculous soldier is discharged, provided his disability is in line of duty, he is entitled to compensation and, if insured, war risk insurance.

The Bureau of War Risk Insurance in pursuance of its compensation and insurance features is charged by law to furnish "such reasonable governmental medical, surgical and hospital services, and with such supplies including artificial limbs, trusses and similar appliances, as the director may determine to be useful and reasonably necessary." This bureau already has a medical section fully organized in several divisions (relief, compensation, tuberculosis, prosthetics, etc.), with men specially trained in medical, surgical and sanitary work, and it is caring for discharged soldiers requiring hospital treatment, numbering thousands at the present time, and is not acting solely as paymaster, as would be implied by this article. Hundreds of tuberculous soldiers are already in sanatoriums all over the country sent by this bureau at its expense, and the United States Public Health Service Sanatorium at Fort Stanton, N. M., the pioneer in government tuberculosis work, is already filled to its capacity and is to care for a large overflow in tents and shacks. These men have gone there voluntarily, not under orders, and I find them not only willing but eager to go, in order to effect a cure.

To assume that it is necessary to use Army discipline to compel a tuberculous soldier to enter a sanatorium is to deny all professional experience in dealing with that class of cases. It may be true that the old Regular Army man of experience may refuse to go to a sanatorium for reasons not necessary to state here; but I think Colonel Bruns has erred in assuming that the men of the selective army will entertain similar views. Thousands of the selective army come from excellent home environment, and there is a considerable proportion of patients who can be properly and successfully managed in their own homes under the care of their trusted family physicians. Many of them are from the rural districts where they can live in the open under the most favorable hygienic conditions.

In pursuing the course of treatment outlined by Colonel Bruns, the Army Medical Corps will not only deprive the soldier and his family of the compensation for disability which is payable to him only after his discharge, but I venture the opinion that this illegal detention of men unfit for further military service will result in an embarrassing number of legal procedures instituted by the families of these men to procure their freedom and their return to civil life where they belong. Return to civil life is the plan followed in England. I quote from an article by Major P. Horton-Smith Hartley, C.V.O., on "The Care of the Tuberculous Soldier" (*British Medical Journal*, 1918, **1**, 609), in which he writes:

> As soon as it is evident that the patient is suffering from phthisis, or even when this is strongly suspected, he is sent home to one of the military hospitals in this country. If there is no doubt about the diagnosis he comes before a medical board, and in due course is invalided from the army, his further treatment being undertaken by the civil authorities.

This is in line with the logical policy of the act creating the Bureau of War Risk Insurance which authorizes the compensation and, in certain cases, the payment of insurance for discharged men, and is the civil authority charged with providing men of no further military value with hospitalization whenever and wherever necessary. The existing sanatoriums for the treatment of tuberculosis throughout the country, with their experienced and already trained staffs, are not only able but also eager to open and extend their establishments for these discharged soldiers, as I know from official dealings with them. The proposed plan means the development of an enormous permanent military establishment, seeping into all the common activities of civil life, and whatever its theoretical value from the standpoint of the disciplinary treatment of tuberculosis, it is sure to invite widespread opposition from the soldier himself, whose right to a discharge cannot be successfully denied.

Charles E. Banks, M.D., Washington, D. C.
Chief Medical Adviser, Bureau of War Risk Insurance.

SAVING THE WASTE IN DRUGS

To the Editor:—In an attempt to reduce the drug bills at the Bryn Mawr Hospital, the following experiment has been tried:

A list of all the stock on hand was prepared by the night nurses, and it was found that there were, for the seventy beds, about 650 articles on the medicine shelves. This list, of course, included many duplicates or different preparations of the same drugs, as digitalis, and many different strengths of the same drug, for example, eight preparations of calomel in various denominations and in combination with various amounts of soda. There were also many special preparations that had been used a few times in the remote past and had been untouched since.

A list of drugs that seemed an irreducible minimum was then prepared, the editorial on "Sodium versus Potassium" (The Journal, June 1, 1918, p. 1601) being borne in mind, and submitted to the staff for its approval or correction. It comprised some sixty standard preparations, including, for example, calomel in halves and tenths only, morphin in quarters and twelfths, strychnin in thirtieths and fortieths, etc., from which other strengths could readily be made.

It is intended that all future orders shall be made in accordance with this list, and that no special prescriptions shall be written under unusual circumstances. From experience in other hospitals, I have no doubt there is a vast amount of medicine "rusting" on the shelves throughout the country.

Frederic C. Sharpless, M.D., Bryn Mawr, Pa.

A SMALLPOX EPIDEMIC AMONG THE MIAO PEOPLE OF HAINAN

To the Editor:—May 1, 1918, a man came out of the mountains in the interior of Hainan from a Miao village, stating that smallpox had broken out, and asking for vaccine. The Miao people are semiaboriginal, and live by themselves in the depths of the forest. An epidemic of any kind is liable to be extremely disastrous to them.

An assistant was sent in with vaccine. June 13, the chief of the village came to the hospital and reported that smallpox had carried off nearly half of the village. Knowing that the vaccine sent in had been fresh, this information was surprising, and close inquiry brought out the following facts:

1. The epidemic had been extremely fatal.
2. All unvaccinated persons infected died. There were a number in the village not vaccinated, because a sufficient supply was not available, and it takes from two to three weeks for a supply to come from Hongkong.
3. About seven of those vaccinated contracted the disease and died, but in each of these cases the onset was less than four days after vaccination.
4. Several of those vaccinated contracted the disease, but only in a mild form. In these cases the onset was from six to seven days after vaccination.
5. The remainder of those vaccinated did not contract the disease.
6. Surrounding villages escaped the epidemic by voluntarily shunning all intercourse with the stricken village.

These facts are interesting because all the points reported were noted by the chief himself, and conform with remarkable accuracy to our knowledge of the epidemiology of the disease.

Nathaniel Bercovitz, M.D., Kachek, Hainan, China.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

DIPLOSAL AND ACETYLSALICYLIC ACID

To the Editor:—For five or six years I have been using diplosal entirely instead of the soluble, irritating, nauseous salicylates. Since the war has been going on, diplosal has become so scarce that its cost is prohibitive to my poorer patients. I would regret having to return to sodium salicylate, so I am writing to ask if American pharmacy is supplying a practical substitute or equivalent of diplosal. If not, please advise me what I can best prescribe.

Samuel E. Woody, M.D., Louisville, Ky.

Answer.—Possibly because it is not now advertised, the demand for diplosal is not sufficient to induce American manufacturers to apply to the Federal Trade Commission for a license to manufacture this product in the United States. Diplosal is the salicylic ester of salicylic acid, and in the intestine is broken up into salicylate. The only advantages of diplosal over sodium salicylate, as pointed out by our correspondent, consist in its lesser solubility, and therefore in the taste. The same advantages are possessed by acetylsalicylic acid, which may be used in the same dosage as diplosal.

GRIMBERT'S METHOD—HAY SULPHUR TEST

To the Editor:—1. Please describe Grimbert's method for determining bile pigments. 2. What is the Hay sulphur test for bile salts in the urine?

Louis Hannah, M.D., Sandersville, Ga.

Answer.—1. Ten parts of urine are treated with 5 parts of barium chlorid solution, and the precipitate is filtered off and then suspended in 4 parts of alcohol containing 5 per cent.

hypochloric acid. The mixture is heated one or two minutes on the steam bath. A green color or fluorescence signifies bile pigments. If a brown coloration is present, addition of hydrogen peroxid will change it to green. The absence of bile pigment is indicated by no coloration (Merck's Reagenzien-Verzeichnis, 1913, p. 136).

2. Hay's test, described in Webster's "Diagnostic Methods," depends on the reduction of the surface tension of the urine in the presence of bile acids. A pinch of powdered sulphur is sprinkled on the surface of the urine, which should be preferably at a temperature of 17 C. In normal urines the sulphur will float on the surface. If bile acids are present the sulphur may sink at once, indicating 1 part in 10,000, or may sink only after a few seconds, indicating 1 part in 50,000. Phenol or anilin compounds also lower the surface tension of the urine so that their presence may lead to wrong conclusions.

ALLOTMENT TO FAMILIES OF PRIVATES

To the Editor:—I understand that in the case of privates in the Army the government pays an amount equal to that allotted by the private to his family. Does the same rule apply to the officers of the Medical Reserve Corps?

O. S. Tenley, M.D., Wabeno, Wis.

Answer.—This does not apply to commissioned officers.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Alaska: Juneau, Sept. 3. Sec., Dr. L. P. Dawes, Juneau.

Arizona: Phoenix, Oct. 1. Sec., Dr. Allen H. Williams, 219 Goodrich Bldg., Phoenix.

Colorado: Denver, Oct. 1. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

District of Columbia: Washington, Oct. 8. Sec., Dr. Edgar P. Copeland, The Rockingham, Washington.

Georgia: Atlanta, Oct. 8-9. Sec., Dr. C. T. Nolan, Marietta.

Hawaii: Honolulu, Sept. 9-13. Pres. R. W. Benz, 1141 Alakea St., Honolulu.

Idaho: Boise, Oct. 1-2. Sec., Dr. Ray H. Fisher, Rigby.

Iowa: Des Moines, Sept. 10-12. Sec., Dr. G. H. Sumner, Capitol Bldg., Des Moines.

Kansas: Topeka, Oct. 8-9. Sec., Dr. H. A. Dykes, Lebanon.

Massachusetts: Boston, Sept. 10-12. Sec., Dr. W. P. Bowers, Room 501-1 Beacon St., Boston.

Michigan: Lansing, Oct. 8-10. Sec., Dr. B. D. Harison, 504 Washington Arcade, Detroit.

Minnesota: Minneapolis, Oct. 1-4. Sec., Dr. T. McDavitt, 741 Lowry Bldg., St. Paul.

Missouri: Kansas City, Sept. 30-Oct. 2. Sec., Dr. George H. Jones, State House, Jefferson City.

Montana: Helena, Oct. 1. Sec., Dr. S. A. Cooney, Power Bldg., Helena.

Oklahoma: Oklahoma City, Oct. 8-9. Sec., Dr. J. J. Williams, Weatherford.

Rhode Island: Providence, Oct. 3. Sec., Dr. B. U. Richards, 315 State House, Providence.

Ohio June Examination

Dr. H. M. Platter, secretary of the Ohio State Medical Board, reports the oral, practical and written examination held at Columbus, June 4-7, 1918. The examination covered 10 subjects and included 100 questions. According to information supplied, 127 candidates were examined, of whom 126 passed and 1 failed. Twenty candidates were licensed through reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
College of Physicians and Surgeons, Boston	(1907)	76
Harvard University	(1918)	88.6
Tufts College Medical School	(1917)	89.9
Columbia University	(1915)	89.6
University and Bellevue Hosp. Med. College	(1918)	88.9
Cleveland Homeopathic Medical College	(1903)	77.4
Eclectic Medical College	(1917) (1918)	77; 75.3, 76.6, 78.4, 81, 81.7, 82.1, 82.8, 83.3, 83.8, 85.4, 86.5, 86.5, 87, 87.1.
Ohio State University College of Medicine	(1918)	80.6, 81.5, 82.5, 83.4, 84.3, 84.4, 84.9, 85.2, 85.2, 85.6, 86.2, 86.6, 86.8, 87.3, 88.4, 88.8, 88.9, 89.6, 90.4, 91, 91.7, 95.3.
Ohio State University College of Homeopathic Medicine	(1918)	78.1, 81, 82.5, 82.7, 83.6, 84.3, 85.7, 86, 86.4, 87.4, 89, 91.7.
University of Cincinnati	(1918)	81.9, 82, 82.9, 82.9, 83.4, 83.8, 84.1, 84.4, 84.5, 85, 85.7, 86.1, 86.6, 87.2, 87.5, 87.7, 88.2, 89.3, 89.4, 90.0, 90.3, 90.5, 91.5.
Western University	(1918)	84.1 84.2, 84.4, 84.4, 84.8, 84.9, 85.3, 85.5, 85.9, 86, 86.1, 86.2, 86.2, 86.6, 86.7, 86.9, 87.1, 87.3, 87.3, 87.4, 87.4, 87.5, 87.7, 88.2, 88.2, 88.2, 88.3, 88.6, 88.7, 88.9, 89.5, 89.6, 89.8, 89.9, 90.8, 90.9, 91.3, 91.5, 91.6, 92.3.
Hahnemann Medical College of Philadelphia	(1879)	88.5
Temple University	(1917)	81.6
University of Pennsylvania	(1917)	80.2
University of Pittsburgh	(1917)	88.4
Meharry Medical College	(1916)	75, 75.9
University of Toronto	(1911)	83.3
National University, Athens	(1895)	75+

FAILED

College	Year Grad.	Per Cent.
Meharry Medical College	(1917)	71.3

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Chicago College of Medicine and Surgery	(1917)	Illinois
Hahnemann Medical College and Hospital of Chicago	(1873)	Illinois
University of Louisville	(1916)	Kentucky
University of Maryland	(1903)	Maryland
Harvard University	(1905)	Vermont
Detroit College of Medicine and Surgery	(1917)	Michigan
University of Michigan Homeo. Med. School (1910)	(1914)	Michigan
Barnes Medical College	(1898)	Illinois
University Medical College of K. C.	(1903)	Kansas
Eclectic Medical College	(1913)	California
Miami Medical College	(1892)	Kentucky
Starling-Ohio Medical College	(1913)	W. Virginia
University of Pennsylvania	(1890)	Penna.
University of Pittsburgh	(1913)	Penna.
Meharry Medical College (1913)	(1914)	Alabama
Marquette University	(1916)	Wisconsin
University of Vienna, Austria	(1900)	Missouri
National University, Athens	(1905)	Minnesota

Delaware June Examination

Dr. Henry W. Briggs, secretary of the Medical Council of Delaware, reports the practical and written examination held at Wilmington, June 18-20, 1918. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 8 candidates examined, 7 passed and 1 failed. Six candidates were licensed through reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
College of Phys. and Surg., Baltimore	(1912)	78.9
University of Maryland	(1917)	87.6
New York Homeo. Med. Coll. and Flower Hosp.	(1918)	75
Hahnemann Med. Coll. and Hosp. of Philadelphia	(1918)	83
Jefferson Med. Coll.	(1916) (1918)	82; 82.6, 88.6

FAILED

College	Year Grad.	Per Cent.
University of Maryland	(1917)	73.6

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
University of Maryland	(1901) (1916),	Maryland
Columbia College in the City of New York	*(1894)*	*New York*
Jefferson Medical College	(1904) (1912) (1914)	Penna.

Book Notices

Les Lésions du Corps Thyroide dans la Maladie de Basedow. Par Gustave Roussy, Professeur agrégé à la Faculté de Médecine de Paris. Paper. Price, 3 francs. Pp. 135, with 10 illustrations. Paris: Masson et Cie, 1914.

This monograph was prepared for presentation at Luxembourg in August, 1914, before the Twenty-Fourth Congress of Alienists and Neurologists of France and those countries speaking the French language. It is a comprehensive statement of fact and theory concerning the symptomatology, etiology, pathology and treatment of exophthalmic goiter. The author submits anatomic and physiologic observations of his own and of Clunet's in the development of his theme, laying particular emphasis on the association of a persistent thymus with certain changes in the thyroid gland as characteristic of exophthalmic goiter On the histologic side he emphasizes as features of diagnostic importance the presence in the thyroid of islets of eosinophilic thyroid epithelium as well as aggregations of lymphoid cells. Colored plates illustrate his findings. After discussing the nervous or sympathetic theory, which accounts for the symptomatology and signs of exophthalmic goiter as a result of stimulation of the cervical sympathetic, he passes on to the relation of the thyroid gland to the other glands of internal secretion (genital glands, hypophysis, suprarenals and pancreas), ending with emphasis of the importance of a persistent thymus with changes in the thyroid as a cause of the disease. In discussing the treatment of the intoxication resulting from an "adulterated secretion" of the hyperplastic thyroid gland, he expresses the opinion that radiotherapy will ultimately replace the surgical interference commonly practiced now in cases not amenable to rest and internal medication. The subject in all its aspects is developed along historical lines with a decidedly French perspective. The chief object of the author apparently (judging from the audience for which the treatise was written as well as from repeated statements in the text) was to convince certain authors, especially the French, that exophthalmic goiter is the result of a derangement of certain glands of internal secretion (the thyroid and the thymus), and that the disease should, therefore, not be classified "among the affections of the nervous system." His own contributions incorporated in the monograph would certainly not justify the lengthy presentation of facts so generally known to most medical men.

Burns and Their Treatment, Including Dermatitis from High Explosives. By J. M. H. Macleod, M.A., M.D., F.R.C.P., Physician for Diseases of the Skin, Charing Cross Hospital. Cloth. Price, $2. Pp. 160, with 19 illustrations. New York: Oxford University Press, 1918.

One of the favorite topics of war medicine in England is burns. Perhaps for this reason many authors present complicated descriptions of treatment. Thus, Macleod classifies burns from heat under six degrees—a classification that surely is more of a burden than an aid. In the discourse on the technic of treatment, Macleod seems to lack the faculty of giving simple, clear directions. Of course, no book on this subject would be complete without including the paraffin film treatment, but the author evidently has accepted Hull's work entirely, without referring at all to the American contributions. He gives the composition of Ambrine as "paraffin, resin and oleum succini"; the Chemical Laboratory of the American Medical Association reported it to be composed mostly of paraffin, with small amounts of an asphalt-like body and a fatty oil resembling sesame. Macleod also gives the complicated formula of Hull for making a "hot" wax, wherein no attention is paid to the important physical attributes of the paraffin. He neglects entirely to mention that paraffin alone, of proper consistency, has been found by the advanced workers in America to be as good as the wax mixtures, if not better. Besides the chapters on burns from heat, there are chapters on burns from electricity, corrosives, the roentgen ray, the sun and corrosives, and a chapter on dermatitis from high explosives. The book is one of a series of war primers published in England, somewhat like the series of medical war booklets published by the Surgeon-General's Office of the United States Army. In common with this series the Oxford War Primers seem to be rather high in price for the quantity and quality of material furnished.

A Handbook for School Nurses. By Helen W. Kelly, R.N., Superintendent of Field Nurses, Department of Health, Chicago, and Mabel C. Bradshaw, R.N., Superintendent of School Nurses, Board of Education, Milwaukee. Cloth. Price, $1. Pp. 109. New York: The Macmillan Company, 1918.

The authors believe that no prophetic vision is required to foresee a rapidly extending field of activity for the school nurse, and think that in the near future she will be known, not as the school nurse, but as the director of school hygiene. As such, she should be charged with the responsiblity for all the health conditions of the school, ventilation, heating and lighting, and should lecture on hygiene and physiology and be general health adviser to the entire school population. They state also that if social hygiene is to be taught in the schools, the school nurse is the proper person to teach it. The book starts with a historical sketch of the subject, and then goes on to discuss at length the work of the school nurse and the medical inspection of schools. It should be of interest to parents as well as to nurses.

Siliceous Dust in Relation to Pulmonary Disease Among Miners in the Joplin District, Missouri. By Edwin Higgins, A. J. Lanza, F. B. Laney and George S. Rice. Bulletin 132, Department of the Interior, Bureau of Mines. Paper. Price 25 cents. Pp. 116, with 38 illustrations. Washington: Government Printing Office, 1917.

This bulletin gives a useful general review of the origin and effects of mine dust, as well as a study of the special conditions mentioned in the title. It is evident that the morbidity is high among workers in mines where the dust is of a siliceous character, and that the health problem is a serious and important one. Such studies as this by the proper governmental organizations are of great value.

Society Proceedings

COMING MEETINGS

Am. Assn. of Electro-Therapeutics and Radiology, Boston, Sept. 10-12.
Am. Assn. of Obstetricians and Gynecologists, Detroit, Sept. 16-18.
American Association of Railway Surgeons, Chicago, Oct. 16-18.
American Public Health Association, Chicago, Oct. 14-17.
Am. Roentgen Ray Society, Ft. Oglethorpe, Ga., Sept. 4-6.
Colorado State Medical Society, Estes Park, Sept. 9-11.
Delaware State Medical Society, Wilmington, Oct. 8.
Indiana State Medical Association, Indianapolis, Sept. 25-27.
Kentucky State Medical Association, Louisville, Sept. 3-6.
Minnesota State Medical Association, Duluth, Aug. 28-30.
Missouri Valley Medical Society, Omaha, Sept. 19-20.
New Mexico Medical Society, Albuquerque, Oct. 7-8.
Ohio State Medical Association, Columbus, Oct. 1-3.
Pennsylvania State Medical Society, Philadelphia, Sept. 23-26.
Utah State Medical Association, Salt Lake City, Sept. 10-11.
Vermont State Medical Society, Burlington, Oct. 10-11.
Virginia State Medical Society, Richmond, Oct. 22-25.
West Virginia State Medical Association, Harpers Ferry, Oct. 1-3.
Wisconsin State Medical Society, Milwaukee, Oct. 2-4.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Physiology, Baltimore

July, 1918, **46**, No. 4

1 *Effects of External Temperature, Morphin, Quinin and Strychnin on Thyroid Activity. C. A. Mills, Lawrence, Kan.—p. 329.
2 *Physiology of Stomach. Gastric Secretion and Urine Ammonia. A. C. Ivy, Chicago.—p. 340.
3 *Effects of Epinephrin on Distribution of Blood. Venous Discharge from Suprarenal Glands. R. E. L. Gunning, Chicago.—p. 362.
4 Antgenic Property of Closed Intestinal Loop Fluid. C. A. Dragstedt, L. R. Dragstedt and C. S. Chase, Iowa City.—p. 366.
5 *Studies on Thromboplastic Action of Cephalin. S. A. Waksman, Berkeley, Calif.—p. 375.
6 Activities of Decerebrate and Decerebellate Chicks. E. G. Martin and W. H. Rich, San Francisco.—p. 396.
7 Effect on Body Temperature Induced by Thermal Stimulation of Heat Center in Brain of Cat. A. L. Prince and L. J. Hahn, New Haven, Conn.—p. 412.
8 Effect of Volume of Hind Limb Induced by Heating and Cooling Corpus Striatum of Rabbit. A. L. Prince and L. J. Hahn, New Haven, Conn.—p. 416.
9 *Physiology of Stomach: Studies in Water Drinking. A. C. Ivy, Chicago.—p. 420.
10 Experiments on Nature of Sense of Smell in Common Catfish, Amiurus Nebulosus (Lesueur). J. M. D. Olmsted.—p. 443.
11 Relation of Dorsal Roots of Spinal Nerves and Mesencephalon to Control of Respiratory Movements. H. C. Coombs, New York.—p. 459.
12 Effect of Epinephrin on Irritability and Contractility of Mammalian Nerve Muscle Preparations After Death. C. M. Gruber and A. P. Fellows.—p. 472.
13 Supposed Relation of Sympathetic Nerves to Decerebrate Rigidity, Muscle Tone and Tendon Reflexes. S. Cobb, Baltimore.—p. 478.
14 *Noneffect of Corpus Luteum Preparations on Ovulation Cycle of Rat. G. W. Corner and F. H. Hurni, San Francisco.—p. 483.

1. **Factors Influencing Thyroid Activity.**—Mills found that high external temperatures cause a diminished activity of the thyroid glands of animals, as judged by morphology, together with a slowing of the rate of growth. Low external temperatures, on the contrary, increase the thyroid activity and also seem to cause a faster rate of growth. Morphin and quinin appear to decrease the activity of the gland, probably as a result of the lessened metabolism and diminished heat production. Strychnin, on the other hand, causes greater thyroid activity, very likely by increasing metabolism through its action on the spinal cord.

2. **Gastric Secretion and Urine Ammonia.**—Ivy says that the ammonia excretion after the ingestion of a meal varies slightly in the same individual and markedly in different individuals. There was an increase in urine ammonia after the ingestion of a meal in the majority of cases studied in this series. A marked increase occurred in the dogs worked on. During gastric stimulation by food or by water followed by absorption in the intestine there is an increase in urine ammonia. The degree of increase in urine ammonia on the

absorption of acid chyme is dependent on the rate of absorption of the acid chyme or, in other words, its fluid consistency. During gastric secretion not followed by absorption in the intestine no increase in urine ammonia occurs. The absorption of water from the intestine (distal or proximal) causes some diuresis but no change in urine ammonia. The absorption of alkali from the intestine causes diuresis with a marked decrease in urine ammonia. The absorption of acid from the intestine causes some diuresis with an increase in urine ammonia. Diuresis per se causes no change in urine ammonia. Intravenous injection of water causes some gastric stimulation but no increase in urine ammonia or urine output. So gastric secretion and urine ammonia are related in that the urine ammonia is increased by the absorption in the intestine of the acid product of gastric secretion, provided that this acid secretion is absorbed before neutralization occurs, that is, at a relatively fast rate.

3. **Venous Discharge from Suprarenal Glands.**—Intravenous injections of epinephrin produced no essential changes in the blood flow through the suprarenal glands. The changes produced passively follow the general arterial pressure. The splanchnic nerves do not carry vasomotor fibers to the suprarenal glands.

5. **Thromboplastic Action of Cephalin.**—In testing the thromboplastic action of cephalin Waksman adopted the method of Howell with the following modifications: (*a*) Blood plasma containing 0.2 to 0.25 per cent. of sodium citrate was found to be well suited for these tests; (*b*) a standard solution of calcium hydrate can be substituted for serum, thus eliminating one or more unknown factors. The function of the serum in the plasma serum-cephalin mixture consists in supplying the calcium necessary for neutralizing the excess of anticoagulant in the plasma and probably in supplying more prothrombin. By using calcium hydrate to neutralize the excess of anticoagulant in the plasma, an optimum concentration is found, above which the excess of calcium will delay the coagulation of the plasma. There is always a maximum concentration of the cephalin in the water solution which gives the most rapid coagulation; a further increase in the concentration of the cephalin will not result in an increase in the rapidity of coagulation; by decreasing the concentration of the cephalin below this maximum a delay in the coagulation will result. This concentration seems to fall between 0.25 and 0.30 per cent. for the lots tested. Cephalin kept in a vacuum acts much better as a thromboplastic agent than the same lot of cephalin kept in loosely stoppered containers. The cephalin obtained from the brains of different animals does not differ greatly as a thromboplastic agent; the slight differences obtained were probably due to the impurities and methods of keeping the material. Cephalin dissolved in water loses to some extent its thromboplastic properties, particularly old lots of cephalin kept exposed to the air. Since coagulation of the blood is an enzymatic phenomenon it is much more rapid both in the presence and in the absence of cephalin at 37 than at room temperature. Serum 7 days old is less active than fresh serum in accelerating the clotting of the blood; this was corrected, with the method used, by the addition of a solution of calcium hydrate; fresh serum is not depreciated in its action on the plasma-cephalin mixture by the presence of old serum but is even slightly accelerated. Surgical gauze impregnated with cephalin was also tested by the above method and found to increase the rapidity of the coagulation of the plasma.

9. **Studies in Water Drinking.**—According to Ivy's observations the ingestion of water with the meals (400 to 800 c.c.) increases the amount and the free and total acidity of the gastric juice. The ingestion of water with the meals decreases the emptying time of the stomach, due to the dilution of the stomach contents. Food in the stomach retards the evacuation of water. The emptying time of water from the normal human stomach varies, conservatively from 400 to 100 c.c. in fifteen minutes. The manner of the discharge of water from the dog's stomach is, according to the observations on four dogs, rhythmic and could very possibly correspond to peristaltic waves. All stomachs do not respond to stimulation by water, there being a marked variation in different individuals. Those stomach that empty water slowly (150 c.c. or less in fifteen minutes when 400 c.c. are drunk) respond much more than those that empty water fast. From the observations in this study water cannot be substituted for the Ewald meal. The latent period of the gastric glands of man when stimulated by water is from five to seven minutes. It was impossible to demonstrate a fatigue of the gastric glands when stimulated by water or by gastrin for a period of ten to twenty-six minutes.

14. **Effect of Corpus Luteum on Ovulation Cycle.**—The intraperitoneal injection of large doses of desiccated mammalian corpus luteum substance does not inhibit ovulation in the rat.

Boston Medical and Surgical Journal

August 1, 1918, **179**, No. 5

15 Modern Principles in Control and Management of Cancer. E. Reynolds, Boston.—p. 147.
16 Energy Content of Extra Foods. C. G. Benedict and F. G. Benedict, Boston.—p. 153.
17 Impacted Stones of Bladder and Urethra. W. D. Bieberbach, Worcester.—p. 163.
18 Training School for Hospital Apprentices at Boston City Hospital. J. A. Foley, Boston.—p. 162.

Journal of Biological Chemistry, Baltimore

July, 1918, **35**, No. 1

19 Isolation and Identification of Stachydrin from Alfalfa Hay. H. Steenbock, Madison, Wis.—p. 1.
20 *Determination of Cholesterol in Blood Serum. A. Bernhard, New York.—p. 15.
21 Choice Between Adequate and Inadequate Diets, as Made by Rats. T. B. Osborne and L. B. Mendel, New Haven, Conn.—p. 19.
22 *Amino-Acids of Mature Human Placenta. V. J. Harding and C. A. Fort, Montreal, Canada.—p. 29.
23 Rate of Color Production in Alkaline Solutions of Dextrose and Picrate. T. Addis and A. E. Shevky, San Francisco.—p. 43.
24 Modification of Picrate Method for Blood Sugar Determinations. T. Addis and A. E. Shevky, San Francisco.—p. 53.
25 *Dietary Qualities of Barley. H. Steenbock, H. E. Kent and E. G. Gross, Madison, Wis.—p. 61.
26 Origin of Creatin. L. Baumann and H. M. Hines, Iowa City, Iowa.—p. 75.
27 Effect of Variations in Available Alkali on Yield of Acetone in Oxidation of Butyric Acid with Hydrogen Peroxid. E. J. Witzemann, Chicago.—p. 83.
28 *Ammonia Excretion as Influenced by Ingestion of Alkalies. W. Denis and A. S. Minot, Boston.—p. 101.
29 *Casein of Human Milk. A. W. Bosworth and L. A. Giblin, Boston.—p. 115.
30 Preparation of Ovalbumin and Its Refractive Indices in Solution. A. R. C. Haas, Berkeley, Calif.—p. 119.
31 *Preparation of Pure Casein. L. L. Van Slyke and J. C. Baker, Geneva, N. Y.—p. 127.
32 Method for Making Electrometric Titrations of Solutions Containing Protein. J. C. Baker and L. L. Van Slyke, Geneva, N. Y.—p. 137.
33 Free Lactic Acid in Sour Milk. L. L. Van Slyke and J. C. Baker, Geneva, N. Y.—p. 147.

20. **Determination of Cholesterol in Blood Serum.**—The method presented by Bernhard can be completed in about five hours, and shortens the number of operations necessary to complete the determination. The results are almost identical with those obtained by the Henes method. The revised method obviates the necessity of extraction for twenty-four hours with alcohol and again for twenty-four hours with ether, since treatment with alcohol-ether mixture insures complete extraction of cholesterol almost immediately. By the use of the alcohol-ether mixture both steps are combined in one operation. The calcium hydroxid precipitate of cholesterol after saponification is dried in an electric oven instead of allowing it to dry in the air over night. An absolutely dry sediment is thus obtained. Treatment of this dry sediment with ether for half an hour is sufficient for complete extraction of the cholesterol, whereas Henes extracts the sediment with ether for twenty-four hours.

22. **Amino-Acids of Human Placenta.**—A determination of the amino-acids in mature human placenta has been made by Harding and Fort according to the nitrogen distribution method of Van Slyke. The distinguishing feature of the placenta protein is a high arginin content. This is double the arginin content found in other human organs (breast, liver, heart, kidney and muscle). Corresponding to this difference, there must be ascribed to the placenta a function

differing from that of other organs. The placenta from a chemical standpoint cannot be regarded entirely as a passive organ.

25. **Dietary Qualities of Barley.**—In this paper are presented the results of experiments with barley which in themselves may not offer any striking peculiarities, yet they may serve to allay the fears of those dietitians concerned over the use of barley as a wheat substitute. By comparison of these data with such data as are available for maize, oats, and wheat it is indicated that the barley kernel does not differ essentially from these grains in its nutritive properties. Barley alone is unable to meet the demands of the growing animal or even to allow noteworthy amount of growth to take place. The addition of the fat-soluble vitamine in the form of butter fat improves its growth promoting quality to some extent, but the addition of casein is of little if any benefit. In fact the animals on this latter ration seemed to be more susceptible to cutaneous infection. Of the single additions, the salt mixture by satisfying the demands of the animal for the elements in the group calcium, chlorin, and sodium exerted the most beneficial influence. When only these were supplied, however, the animals were not able to maintain themselves as long as when the complete salt mixture was added. Gaseous intestinal fermentation with abnormal distention of the tract seemed to be the immediate cause of death. The important rôle of the mineral elements is again brought out when multiple additions were made; only where salts were one of the additions was substantial growth noted. Where all these additions, that is, salts, protein and fat-soluble vitamine, were made, normal growth, reproduction, and rearing of the young became possible.

Barley contains an abundance of the water-soluble vitamine. Even when the amount of barley was reduced to 60 per cent. of the ration it was found possible for a female to rear a litter of young. On 40 per cent. of barley growth was entirely normal, but no young were reared. On 20 per cent. growth was not quite normal. Barley is deficient in the fat-soluble vitamine. The protein content of barley (13.6 per cent.) is too low for continued growth at the normal rate. The primary growth determinant in barley is inorganic salts. Of secondary importance, but no less urgent, are protein and fat-soluble vitamine.

28. **Ammonia Excretion as Influenced by Ingestion of Alkalis.**—By the intermittent administration to nephritics of small doses of sodium bicarbonate it has been possible to obtain urines absolutely free from even traces of ammonia. An attempt to duplicate these results on normal subjects has been unsuccessful. The authors' results furnish support to the theory that the sole use of urinary ammonia is for the neutralization of acids found during the normal metabolic processes, and would seem to render superfluous the speculations regarding the residual ammonia fraction of urine.

29. **Casein of Human Milk.**—A considerable quantity of pure casein has been prepared by Bosworth and Giblin from human milk. This casein was found to resemble the casein from cow's and goat's milk in the following respects: It has the same nitrogen, phosphorus and sulphur content; it has the same degree of valency, and gives the same series of salts with bases; it has the same molecular weight; it is acted on by rennin in the same manner; the paracasein produced by the action of rennin is similar to the paracasein produced by the action of rennin on the casein of cow's milk.

31. **Preparation of Pure Casein.**—Casein in pure form, free from inorganic phosphorus, calcium and hydrolytic products, is prepared by treating undiluted milk with normal acid, preferably lactic or a mixture of 1 part of hydrochloric and 2 parts of acetic. The acid is introduced slowly into the undiluted milk below the surface, the tip of the tube carrying the acid into the milk being so arranged that it is very close to a mechanical stirrer revolving at a high speed and also near the bottom of the vessel containing the milk. Under these conditions the acid does not cause coagulation of the casein at the point where the acid first comes into contact with a portion of the milk. Details of precipitation, washing and drying of the casein are given. Ash and phosphorus contents are unusually low, being about 0.10 per cent. of ash and 0.80 per cent. of phosphorus, with no calcium. By this method casein can be prepared within ten hours. Excess of acid with danger of hydrolysis is avoided. Contact with reagents is reduced to a minimum. The product is a very fine white powder. It contains neither inorganic phosphorus nor calcium. It dissolves at once in dilute solutions of monobasic alkalies and also in excess of lime water to a clear solution. Lime water solutions of this casein, when neutral, are opalescent. The yield of the casein from milk is practically quantitative.

Kentucky Medical Journal, Bowling Green

August, 1918, **16**, No. 8

34 Prostatism. W. T. Briggs, Lexington.—p. 334.
35 Case of Typhus. J. A. Flexner, Louisville.—p. 339.
36 Camp Sanitation. L. R. Poust, Camp Zachary Taylor.—p. 348.
37 Acute Articular Rheumatism. U. V. Williams, Frankfort.—p. 350.
38 Rhinoliths. W. D. Levi, Louisville.—p. 351.
39 Some Common Remedies in Every Day Use. L. L. Solomon, Louisville.—p. 352.
40 Acute Secondary Parotitis or Sialo-Adenitis, Following Abdominal Operations. C. G. Forsee, Louisville.—p. 358.
41 Gallbladder Cases. C. W. Karraker, Louisville.—p. 360.
42 Clinical Study of Faucial Tonsil in Adult and Its Treatment. A. L. Bass, Louisville.—p. 363.
43 Chorea Minor. W. L. Mosby, Bardwell.—p. 369.
44 Unusual Case of Lobar Pneumonia. F. C. Askenstedt, Louisville.—p. 370.
45 Cholera Infantum. H. T. Crouch, Bardwell.—p. 371.

Medical Record, New York

August 3, 1918, **94**, No. 5

46 Modern Standards in Abnormal Obstetric Cases and Their Treatment. J. W. Markoe, New York.—p. 177.
47 War Neuroses in Women. G. F. Boehme, Jr., New York.—p. 180.
48 Cancer, Disease of Deficiency. J. Round, London.—p. 184.
49 Point of Entry. D. H. Stewart, New York.—p. 191.
50 Congenital Laryngeal Stridor; Report of Two Cases. J. Levy, Newark, N. J.—p. 193.
51 Drug Addiction and Medical Practitioner. T. W. Edgar, New York.—p. 194.
52 Simple Therapeutic Test of Thyroid Function. H. R. Harrower, Los Angeles.—p. 196.

Michigan State Medical Society Journal, Grand Rapids

August, 1918, **17**, No. 8

53 Fragilitas Ossium; Report of Three Cases. F. L. Rose, Jackson.—p. 307.
54 Thyroid Gland with Special Reference to Goiter. J. G. Sherrill, Louisville.—p. 309.
55 So-Called Bladder Diseases. S. Levin, Lake Linden.—p. 316.
56 Roentgentherapy in Gynecology. G. E. Pfahler, Philadelphia.—p. 320.
57 Three Cases of Organic Brain Disease with Aphasia and Agnosis. A. M. Barrett, Ann Arbor.—p. 330.
58 Case of Transverse Myelitis from Bullet Wound. C. L. Washburne, Ann Arbor.—p. 334.
59 Etiology and Treatment of Dystocia of Cervical Origin; Report of Four Cases. H. Henderson, Ann Arbor.—p. 336.

Modern Hospital, St. Louis

August, 1918, **11**, No. 2

60 Standardization of State Hospitals. A. L. Bowen, Springfield, Ill.—p. 81.
61 Nurses' Home of Hackensack Hospital. F. P. Washburn, Hackensack, N. J.—p. 84.
62 Methods of Indexing Hospital Clinical Records. M. Byrne, Chicago.—p. 86.
63 Has Every Hospital an Inherent Right to an Intern? J. M. Baldy, Philadelphia.—p. 89.
64 Floating Hospital of St. John's Guild Again at Work. J. W. Beckman, New York.—p. 92.
65 Green Operating Room at St. Luke's Hospital, San Francisco. H. M. Sherman, San Francisco.—p. 97.
66 State Sanatorium and Labor Problem. S. A. Douglass, Mount Vernon, Ohio.—p. 99.
67 Hospital Accounting. C. A. Porter and H. K. Carter.—p. 102.
68 Little Journeys to Places and People Worth Knowing. M. J. Robinson, Chicago.—p. 108.
69 Conduct of Hospitals. R. W. Corwin, Pueblo, Colo.—p. 113.
70 Business of Medicine and Profession of Medicine. J. G. Bowman, Chicago.—p. 123.
71 General Hospital. A. J. Ochsner, Chicago.—p. 124.

New York Medical Journal

August 3, 1918, **108**, No. 5

72 Ophthalmic Changes in Tabes and Paresis. I. S. Wechsler, New York.—p. 181.
73 Successful Treatment of Chronic Pathogenic Infections of Lower Respiratory Tract. I. W. Voorhees, New York.—p. 189.

74 Why Is Asparagus Forbidden During Gonorrhea? H. G. Klotz, White Plains.—p. 191.
75 Rectal Cases. A. A. Landsman, New York.—p. 194.
76 How Can We Get Enough Sleep? E. F. Bowers, New York. —p. 196.
77 Hirschsprung's Disease with Eventration of Right Half of Diaphragm. E. A. Aronson, New York.—p. 196.
78 Examination of Recruits for Tuberculosis. R. C. Matson, Portland, Ore.—p. 199. To be concluded.

Philippine Journal of Science, Manila

March, 1918, **13**, Sec. B, No. 2

CORRECTION

79 *Infections with Coccidium and Isospora in Animals in Philippine Islands and Their Possible Clinical Significance. F. G. Haughwout, Manila.—p. 79.

79. **Infections with Coccidium.**—In THE JOURNAL, April 27, 1918, p. 1262, an error was made in abstracting Haughwout's article. His paper is not a report of cases occurring in the Philippines, but a review of the general problem of human coccidiosis and its possible relation to animal coccidiosis. So far as Haughwout has knowledge, no case of human coccidiosis has been reported in the Philippine Islands, but conditions supervening on the war have led to the discovery in other parts of the world of many cases of undoubted coccidial infection, and these cases, taken in conjunction with older but less exact reports of similar infections, Haughwout believes justify the belief that coccidiosis of man may in time to come be looked on as a definite clinical entity and a condition that may crop up at almost any time or place. The thirty-four cases referred to by him in this paper are recorded in the literature but were not seen by Haughwout.

Haughwout and his co-workers have found coccidia in domestic animals and the morphology of these organisms is being studied exhaustively. The author emphasizes that the main thing that the observer must be on his guard against is the confusing of the cysts of helminths, particularly the eggs of trematodes and of hookworms, with coccidial cysts and vice versa. As a rule, the eggs of helminths will be found to be much larger than the sporozoan cysts, but there is no denying the fact that unsegmented eggs of this type do bear a striking resemblance to the oocysts of coccidia, and this resemblance may even extend to the early stages of segmentation of the eggs, particularly the two-cell stage. The best plan is to dilute the stool with a considerable quantity of water and set a number of the cysts aside in a moist chamber for two or three days.

In the coccidial cysts the protoplasm entirely fills the cyst in the early stage, but later it contracts to a spherical mass in the center, leaving clear spaces at each pole of the cyst. Eventually this mass divides, in the case of *Isospora* into two masses and in the case of *Coccidium* into four masses. A cyst membrane forms around each of these daughter masses, and some hours later sporozoites and a mass of residual protoplasm can be made out in each of the sporocysts that are continued within the oocyst. *Isospora* forms four sporozoites in each sporocyst and *Coccidium* two. This establishes the identification beyond a doubt. All these changes may be seen by making examinations of the cysts under the microscope at varying intervals, or the cysts may simply be set aside in the moist chamber for from forty-eight to seventy-two hours and then examined. It is a comparatively simple matter to isolate individual cysts with a capillary pipet under the microscope.

South Carolina Medical Association Journal, Greenville

July, 1918, **14**, No. 7

80 What Shall We Do With *Hernia* Cases? J. H. Johns, Westminster.—p. 170.
81 Common Head Colds. E. W. Carpenter, Greenville.—p. 172.
82 Some Popular Ideas About Insanity. R. L. Leak, Columbia.—p. 176.

Surgery, Gynecology and Obstetrics, Chicago

July, 1918, **27**, No. 1

83 Surgery of Double Kidney; Report of Case of Resection of Upper Segment for Calculous Pyonephrosis. H. H. Young and E. G. Davis, Baltimore.—p. 1.
84 Supernumerary and Single Ureters Opening Extravesically; Two Cases. E. S. Judd, Rochester, Minn.—p. 13.
85 Mixed Tumors of Salivary Glands. A. Fraser, New York.—p. 19.
86 *Cysts and Pseudocysts of Pancreas; Report of Cases. A. A. Kerr, Salt Lake City, Utah.—p. 40.
87 Congenital Ranula of Tongue Developed in Left Blandin-Nuhn Gland. R. T. Aguirre, Guatemala, Central America.—p. 45.
88 Globocellular Sarcoma of Right Testicle. Orchidectomy Under Local Anesthesia (Allen's Technic). R. T. Aguirre, Guatemala, Central America.—p. 47.
89 Present Status of Surgery of Bile Tract. A. D. Bevan, Chicago. —p. 49.
90 *Surgery of Posterior Spinal Roots; Results in Two Hundred and Forty-Four Operations. C. R. Steinke, Akron, Ohio.—p. 55.
91 Study of Fractures of Lower Extremity of Humerus. H. A. H. Bouman, Minneapolis.—p. 58.
92 *Mesenteric Vascular Occlusion; Three Cases. A. A. Eisenberg and H. A. Schlink, Cleveland.—p. 66.
93 *Dislocation of Spleen. J. Šaliba, Elizabeth City, N. C.—p. 73.
94 Two-Stage Operation for Carcinoma of Pregnant Uterus Under Paravertebral Anesthesia. N. R. Mason and F. C. W. Konrad, Boston.—p. 75.
95 *Formaldehyd-Phenol in Camphor Paraffin. K. Connell, New York.—p. 81.
96 Essential Points in Method of Hernia Operation. A. B. Keyes, Chicago.—p. 85.
97 End-Result with Bone Plate on Fractured Femur. C. G. Swenson, Chicago.—p. 86.
98 *Cerebral Hernia; Method for Its Surgical Treatment. A. Schwyzer, St. Paul, Minn.—p. 87.
99 Blood Transfusion Simplified by Use of Citrate Ointment. H. W. Abelmann, Chicago.—p. 88.
100 Cesarean Section, Local Anesthesia. H. H. Trout, Roanoke, Va. —p. 95.
101 *Action of "Female Remedies" on Intact Uteri of Animals. J. D. Pilcher and R. T. Mauer, Omaha.—p. 97.

86. **Cysts and Pseudocysts of Pancreas.**—Kerr cites two cases. He says that pancreatic and pseudopancreatic cysts, while not rare, are of sufficient importance to be recorded. The roentgen ray is an important aid in diagnosis in showing the position of the cyst in relation to the stomach and other organs. The treatment is surgical, usually incision and drainage. Sometimes it is practical to remove the entire cyst in favorable cases. Diabetes is an occasional complication of pancreatic cysts, and when present renders the operation more dangerous, although one should not hesitate when less than 4 per cent. of sugar is present after giving a diabetic diet and a course of alkaline treatment to minimize the acidosis, to give even these the benefits of operations. An antidiabetic diet is advisable following operations on the pancreas, especially where the discharge is irritating. Paraffin ointments are serviceable to allay the irritation.

90. **Surgery of Posterior Spinal Roots.**—The work of forty-seven different operators is analyzed by Steinke so that no one man's technic can be accredited with the general good results. The amount of root resected varied from 3 mm. to 3 cm. In the spastic cases four were cured, fifty greatly improved, and forty-seven somewhat improved. In the tabetic cases fourteen were cured, and thirty-seven improved. Operation for pain gave seven cures, and nine improved out of thirty-nine cases. When one considers the gravity of the operation the mortality is not high. With these facts at hand, Steinke says, we may conclude that the operation of resection of the posterior spinal roots, when properly carried out, is one of great value to the patient and should be performed more frequently.

92. **Mesenteric Vascular Occlusion.**—Mesenteric vascular occlusion is not an extremely rare condition. Eisenberg and Schlink found about 400 cases recorded in the literature. The occlusion is most frequently in the arteries. By far the most common lesion produced is hemorrhagic infarction of the intestine. The most common cause of the occlusion is embolism resulting from infection and injury. There is no difference clinically between the arterial and the venous occlusion, regardless as to whether it is due to embolism or thrombosis, in the superior or the inferior vessels. The clinical diagnosis should be made on sudden onset, acute colic-like abdominal pain, distention and tenderness, signs of shock and collapse; often there may be vomiting and constipation; if diarrhea is present, it is almost always accompanied by melena. Three cases are reported.

93. **Dislocation of Spleen.**—Saliba reports a case of dislocation of spleen into the pelvis and its firm fixation into the uterus. The rational treatment of a dislocated spleen is splenopexy. This is true if the spleen is healthy, but a dislocated spleen is rarely a healthy one and, therefore, splenectomy is often the operation indicated. Taking into consideration the patient's physical and constitutional condition, Saliba did a hysteropexy and splenopexy fixing the uterus and the spleen to the abdominal wall. The patient made a good recovery. This case is said to be of interest because it is the first case on record where the spleen so shaped itself as to ride astride the fundus of the uterus. No hemorrhage occurred from the spleen when catgut stitches were inserted into its substances, at first, to control the oozing following the separation of the adhesions to the colon, and, secondly, to fix it to the abdominal wall. Saliba suggests that this might be due to a general increase of the fibrous tissue of the spleen, which could not be verified without a microscopic section.

95. **Formaldehyd-Phenol in Camphor Paraffin.**—The combination described by Connell was the result of a laboratory survey by new methods of the various clinically useful antiseptics. A preliminary trial of this antiseptic in the traumatic crushed wound of civil surgery at the Roosevelt Hospital, New York, has demonstrated that it is a powerful and efficient combination of time tried antiseptics. It combines the rapid sterilizing action of formaldehyd with the slow embalming action of phenol. The painful properties of the former antiseptic and the local and general toxicity of the latter agent are mitigated by dissolving them in an anhydrous, slowly spilling reservoir, namely, the camphor paraffin solvent. The purpose of this combination was to produce an antiseptic of high efficiency and lowered toxicity, which, when employed as the first major surgical dressing together with efficient drainage in the surgery of the advance dressing station, may possess such power of diffusion through organic matter and such permanency of bacterial inhibition that the crushed infected tissue of the war wounds may reach the service of the rear, well drained, without extending infection or local putrefaction. The ultimate product, therefore, to obtain the highest advantage physically and as an antiseptic was compounded as follows: *A*. To 70 parts by weight of pulverized camphor add 30 parts of phenol, liquefied by heat. A clear solution results. *B*. Next melt together paraffin of 52 C. melting point, about 3 parts, and paraffin oil 9 parts, adjusting the proportions until the mixture frosts on the bulb of a test thermometer at 40 C. Add 45 parts of *A* to 50 parts *B*. Obtain a solution freezing at 35 C. *C*. Prepare 10 per cent. of formaldehyd in alcohol. Most readily accomplished by adding formaldehyd solution to alcohol and dehydrating by desiccated sodium sulphate. To 9 parts of *A B* at 40 C. slowly add 5 parts of *C*. A clear solution of all ingredients results which freezes and melts at 36 C. Store in open mouth bottles with paraffined corks or pour directly into tightly wadded gauze packing for ultimate consumption.

Indications for use of formaldehyd-phenol in camphor paraffin. This preparation is to be used as the first major wound antiseptic in civil surgery and in the surgery of the advance dressing stations. It sterilizes and embalms crushed devitalized wounds for transportation or for long immobilization without redressing.

Method of application. Free surgical drainage should be established. Gauze saturated with the antiseptic should be applied as packing into all clefts and pockets. The interior of the wound should be packed firmly, but the drainage openings should be packed loosely. It should be spread as a sheet on all open wounds and covered with paraffined gauze. (On wounds for primary suture, it should be employed as is tincture of iodin.)

℞ by weight, formaldehyd, 0.5 per cent.; phenol, 13.5 per cent.; camphor, 31.5 per cent.; alcohol, 4.5 per cent.; paraffin, 52 C.; paraffin oil, 50 per cent.

98. **Cerebral Hernia.**—In one case cited Schwyzer made use of a bridge flap, including the external table, which was slid over the defect in the skull in the manner of a visor of a helmet. The dependably secured nutrition for the flap, the firm and steady pressure of the flap on the defect, the degree of which can be chosen by the greater or less width and obliquity of the pedicles of the bridge, and finally the hermetic bony closure of the defect are the outstanding benefits of this procedure.

101. **Action of Female Remedies on Intact Uteri of Animals.**—This paper concludes the study of the so-called female remedies (The Journal, Aug. 12, 1916, p. 490; *Arch. Int. Med.*, November, 1916, p. 557; December, 1916, p. 752). These experiments demonstrate conclusively that all the female remedies are quite void of action on the uterus in situ, thus confirming the interpretation of the results of the work on the excised uterus and intestine. They cannot, therefore, influence the tone or contractions of the uterus through any central innervation or through the blood stream, no matter whether the uterus is in a state of normal, increased or decreased tone. The following drugs were all found to be inactive in doses that were far above the average therapeutic dose: unicorn root, pulsatilla, Jamaica dogwood, figwort, valerian, lady's slipper, wild yam, life root, skull cap, blue cohosh, black haw (*Viburnum prunifolium*), cramp bark, squaw vine, false unicorn, passion flower and motherwort.

Tennessee State Medical Association Journal, Nashville

July, 1918, **11**, No. 3

102 Surgery of Thyroid. J. B. Haskins, Chattanooga.—p. 51.
103 Surgical Management of Chronic Gastric and Duodenal Ulcers. R. L. Sanders, Memphis.—p. 57.
104 Laryngeal Tuberculosis; Its Early Recognition and Curative Treatment. C. A. Robertson, Ridgetop.—p. 60.
105 New Treatment of Epithelioma. G. C. Savage, Nashville.—p. 66.
106 Physician's Duty and His Responsibility to Government in Crisis. F. D. Smythe, Memphis.—p. 74.
107 Induration of Corpora Cavernosa: Fibrous Cavernositis. P. Bromberg, Nashville.—p. 78.

Washington Medical Annals

July, 1918, **17**, No. 4

108 Hernia into Lesser Peritoneal Cavity Through Foramen of Winslow. I. S. Stone, Washington.—p. 249.
109 Care of Child Throughout Ages. J. A. Foote, Washington.—p. 251.
110 Case of Ovarian Tumor in Mulatto. I. S. Stone, Washington.—p. 253.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Children's Diseases, London

April-June, 1918, **15**, No. 172-174

1 *Cases of Urinary Disease in Children. R. Thompson.—p. 81.
2 *Erythema Nodosum Associated with Tuberculosis. E. Bronson.—p. 91.
3 Nature of Von Jaksch's Disease. G. Ward.—p. 101.
4 Smallpox in Childhood. H. W. L. Barlow.—p. 110.
5 Can Clinical Manifestations of Congenital Heart Disease Disappear with General Growth and Development of Patient? F. P. Weber.—p. 113.
6 Case of Erythema Iris. F. P. Weber.—p. 115.
7 Case of Hemophilia with Effusion into Knee Joints. P. B. Roth.—p. 116.
8 Pregnancy Occurring in Child Aged Fourteen Years. J. Burnet.—p. 119.
9 Infantile Kala-Azar in France. M. Labbé, Targhetta and Ameuille.—p. 120.
10 Epidemic of Familial Syphilis. E. Jeanselme and Chatelain.—p. 122.
11 Fifth Cusp and Hereditary Syphilis. C. Mantoux.—p. 123.

1. **Urinary Disease in Children.**—Cases of urinary disease in children are not so common as in adults. Thompson suggests that this is owing, perhaps, to the want of obstructive causes, such as enlarged prostate or pregnancy. Obstructive lesions, however, may occur following on tuberculous peritonitis and adenitis. Pyonephrosis may occur due to aberrant blood vessels, renal calculi, or fibrous adhesions kinking the ureter. Vesical calculus in children has a bad prognosis; a lithotrity should always be preceded by a cystoscopy. Traumatic stricture of the urethra has a bad outlook, and, if possible, should be excised and buried deeply.

2. Erythema Nodosum Associated with Tuberculosis.—Bronson cites a case of erythema nodosum in which a tuberculous pleural effusion supervened in a typical example of this eruption occurring in a boy, 9 years of age.

British Medical Journal, London

July 13, 1918, 2, No. 3002

12 Future of Medical Profession. B. Dawson.—p. 23.
13 Clinical Organization of Profession from General Practitioner's Point of View. M. G. Biggs.—p. 26.
14 *Sympathetic Nervous System and Irritable Heart of Soldiers. F. Fraser and R. M. Wilson.—p. 27.
15 Psychoneurotic Factor in Irritable Heart of Soldiers. B. S. Oppenheimer and M. A. Rothschild.—p. 29.
16 Chemotherapy of Gonorrhea. J. E. R. McDonagh.—p. 31.
17 Treatment of Pregnant and Parturient Woman in Prevention of Maternal and Infantile Deaths: Neonatal Life—and Death. J. W. Ballantyne.—p. 32.
18 Maternity Hospital and Antenatal Centers. C. Berkeley.—p. 33.

14. Sympathetic Nervous System and Irritable Heart of Soldiers.—Patients with irritable heart and healthy subjects have been compared by Fraser and Wilson in respect to their reaction to epinephrin and apocodein. In the case of each drug minute doses produced a greater action in the patients than in the controls. It is concluded, therefore, that the sympathetic system of nerve fibers, using the term in its physiologic rather than in its anatomic sense, is relatively unstable in that it appears to be more susceptible to the stimulating and depressing influences, respectively, of these drugs.

Glasgow Medical Journal

May, 1918, 89, No. 5

19 Uterine Fibroids, or Myomas of Uterus Complicating Pregnancy, Labor and Puerperium. W. D. Macfarlane.—p. 257.
20 Rickets in Its Relationship to Housing. L. Findlay.—p. 268.
21 Case of Hematemesis and Hyperpyrexia, Probably of Hysterical Origin. J. M. Melvin.—p. 276.

June, 1918, 89, No. 6

22 Postmalarial Severe Anemia. A. W. Harrington and W. Whitelaw.—p. 321.
23 Soamin (Sodium Arsanilate) in Treatment of Bronchial Asthma. B. N. Ghosh.—p. 343.

Indian Medical Gazette, Calcutta

May, 1918, 53, No. 5

24 Sodium Antimonyl Tartrate Vel Tartar Emetic in Kala-Azar. L. Rogers.—p. 161.
25 Rat Destruction as Means for Prevention of Plague. G. W. P. Dennys.—p. 164.
26 Hemoglobin Index and Other Factors in Newly Recruited Coolies to F. M. S. M. J. Fattray.—p. 168.
27 Metals Gold, Silver and Arsenic in Colloid State. T. C. Boyd. —p. 170.
28 Improved Technic for Detection of Hookworm Eggs. C. Lane. —p. 173.
29 Tetanus and Technic. A. Hooton.—p. 174.
30 Case of Bilharzia Infection (Imported from Mesopotamia, and Occurring in Civil Population at Karachi). D. F. Curjel.—p. 176.
31 Relapsing Fever. M. Ali.—p. 178.
32 Case of Gangosa at Alipore Jail. J. Roy.—p. 180.

Journal of Tropical Medicine and Hygiene, London

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33 Enteromonas Hominis and Protetramitus Testudinis. A. J. Chalmers and W. Pekkola.—p. 129.

Lancet, London

July 13, 1918, 2, No. 4950

34 Modern Views on Diabetes. E. P. Poulton.—p. 31.
35 *Absence of Influenza Bacillus in Exudate from Upper Air Passages in Present Epidemic. T. R. Little, C. J. Garofalo and P. A. Williams.—p. 34.
36 *Some Unusual Forms of Epidemic Disease. A. K. Chalmers, R. M. F. Picken and A. MacLean.—p. 35.
37 Outbreak of Acute Febrile Disease in Three Factories and Industrial School in Glasgow. A. MacLean.—p. 36.
38 Clinical Study of Craniotabes. E. Hughes.—p. 36.
39 Nervous Sequelae of Cerebrospinal Fever. C. Worster-Drought. —p. 39.
40 *New Method of Preparing Gonococcus Antigen. D. Thomson. —p. 42.
41 *Quick Method of Diagnosing Type of Meningococcus in Cases of Cerebrospinal Fever. A. S. G. Bell and I. M. Harmer. —p. 43.
42 Loss of Complementing Power in Kept Serum. J. S. C. Douglas and J. W. Bigger.—p. 44.
43 Kala-Azar in Malta; Two Cases Treated by Intravenous Injection of Tartar Emetic. H. I. W. Kerr.—p. 45.
44 Technical Reeducation in Italy. E. Levi.—p. 53.

35. B. Influenzae and Present Epidemic.—The authors are of the opinion that although the epidemic now prevailing in Europe has been called influenza for the want of a better name, it cannot properly be considered such for the following reasons: 1. The clinical course, though similar to that of influenza, is of very short duration, and there is, so far as they have observed, an absence of relapses, recurrence or complications. 2. The present epidemic is not characterized by a sharp leukocytosis and polynucleosis, but rather by a very slight leukocytosis with a proportional lymphocytosis of the small mononuclear variety. 3. The organism of influenza, namely, *B. influenzae* was in all cases absent and there was present with no exception a gram-positive diplococcus.

36. Unusual Forms of Epidemic Disease.—A considerable number of cases were examined by Chalmers and others. In the cases investigated by Picken nervous symptoms were a predominant feature. In MacLean's inquiry the majority of the cases occurred among groups of workers in industrial establishments. All these cases were of a mild type, characterized by sudden onset, severe headache, prostration and rapid recovery, usually within two to four days. This group contained 420 persons and the symptoms suggested influenza. Excluding the influenza element, this disease appears to be an affection which attacks the central nervous system, alternately the brain or cord, and falls within the group of affections for which the name Heine-Medin (a combination of the names of two observers of outbreaks last century) has been adopted. Of these the form best known is where the cord is the chief seat of the disease (infantile paralysis or poliomyelitis), of which the outbreak in New York in 1916 is probably the most recent on a large scale. It is possible, as Picken suggests, that the form simulating "botulism," is an aberrant form of this, chiefly affecting the brain, and in some parts of France where it has been recently present it has been called "lethargic encephalitis" to distinguish it from the more commonly recognized affection of the cord and as possibly due to a separate cause. In any case it would appear to be an affection of the gray matter of the brain as distinct from disease of the corresponding portion of the cord.

The precise methods of spread are somewhat obscure. The occurrence of isolated cases has suggested the agency of insects, and the stable fly has come under suspicion. With regard to preventive measures, it would seem obvious that the best defense of the population against the spread of the disease lies in a rigid attention to the details of personal and domestic cleanliness, including vigorous action against vermin and insect pests of all sorts. The disease tends to increase during warm weather, and court and stair cleansing and the frequent removal of stable litter should be rigorously enforced.

40. New Method of Preparing Gonococcus Antigen.—The serum to be tested is inactivated by heating to 55 C. for ten minutes in a water bath before dilution. The complement should be titrated against the stock antigen diluted 1 in 10 with 0.85 per cent. saline as used in the test. To twelve Wassermann tubes add 0.1 c.c. of guinea-pig serum complement diluted from ten to 120 times. To each add 0.1 c.c. of the diluted antigen (1 in 10) and 0.1 c.c. of saline. Shake the tubes and place the tray in the ice-chest for one hour. Then put tray in water bath at 37 C. for half an hour. Add to each tube 0.1 c.c. of fully sensitized sheep's corpuscles (3 per cent. suspension). Replace tray in water bath at 37 C. and take the readings after fifteen minutes. The highest dilution of complement which produces complete hemolysis should be taken as 1 minimum hemolytic dose. The test: Three tubes, A, B and C, are employed. (*a*) To A and B add 0.1 c.c. (at a dilution of 1 in 20) of the inactivated serum to be tested. To C add 0.1 c.c. of normal saline. (*b*) To A add complement 0.1 c.c. containing 3 minimum hemolytic doses. To B add complement 0.1 c.c. containing 2 minimum hemolytic doses. To C add complement 0.1 c.c. containing 2 minimum hemolytic doses. (*c*) To A, B and C add 0.1 c.c. compound antigen (diluted 1 in 10). Tube C acts as the control. (*d*) Place the tubes in the ice-chest over night and next morning add to each 0.1 c.c. of a 3 per cent. emulsion of fully sensitized corpuscles. Then place the tubes in the water bath at 37 C. and take the reading after fifteen minutes. The control tube C should show complete hemolysis. Hemolysis in A and B indicates a negative reaction. No hemolysis in A and B indicates a strong positive. No hemolysis in B alone indicates a weak positive.

41. **Meningococcus in Cerebrospinal Fever.**—An antigen is made by dissolving all cocci in twentieth normal sodium hydroxid and bringing the solution back almost to the neutral point by the addition of twentieth-normal hydrochloric acid. This antigen is used in a dilution equivalent to 100 million cocci per c.c. The patient's serum is tested in dilutions of 1:50, 1:100 and 1:200. It is found to be advisable to use all three dilutions for each test, as the readings are not sufficiently clean cut for a single dilution only to be used. A sheep hemolytic system is used and complement is obtained from the ear of a guinea-pig. In the titration of the complement the following method is followed: Increasing doses of a 1:10 solution of complement, namely, 0.15 c.c., 0.2 c.c., 0.25 c.c., etc., are added to tubes already containing antigen and 1:50 normal human serum in the proportions subsequently used in the actual test. These are incubated in the 37 C. water bath for half an hour before the hemolytic couple is added. The exact amount of complement required to bring about complete hemolysis under these conditions is then used in the test proper. A control is put up of the serum of the patient without the antigen and a further control of the antigens only.

Practitioner, London

July, 1918, **101**, No. 1

45 *Investigation of Four Hundred and Sixty-Three Cases of Supposed Dysentery; Treatment of Some with Emetin Adsorption Product. R. Donaldson, A. B. Clark and R. C. McLean.—p. 1.
46 Review of Recent Liteature on Diseases of Heart. C. W. Chapman.—p. 11.
47 *Heart Reserve in Military Training. A. Johnson.—p. 21.
48 Review of Recent Literature on Urinary Surgery. J. W. T. Walker.—p. 23.
49 Malignant Chorionepithelioma in Male. Fatal Intraperitoneal Hemorrhage from Rupture of Metastatic Growth in Liver. F. P. Weber.—p. 31.
50 Some Uncommon Causes of Pelvic Hemorrhage in Women. G. Taylor.—p. 37.
51 An Unorthodox View of Diseases of Appendix. J. C. Barker.—p. 40.
52 *Value of Early Lumbar Puncture in Meningism. A. S. Gillett.—p. 49.

45. **Dysentery Treated with Emetin Adsorption Product.**—From a study of the type of case dealt with in this paper, it would appear that while three examinations of the excreta will probably detect about 95 per cent. of carriers among those convalescent from bacillary dysentery, at least five examinations ought to be made in the case of persons suspected of having had dysentery. It is important to bear in mind that the urine may be a possible source of infection. In the search for protozoal cysts Donaldson and his associates recommend the double stain process in preference to the simple iodin method, in order to minimize the risk of missing positive cases, especially when the infection is a light one. As regards treatment, while exact data concerning the amount of emetin given abroad subcutaneously are wanting, the results, judging from the cases examined, appear to indicate comparative inefficacy of that form of administration. Two preparations have been used in treatment, namely, emetin bismuthous iodid and an emetin adsorption product. These appear to be of equal potency as regards rendering the stools negative, and superior to emetin given subcutaneously. B. E. I., however, is handicapped by reason of its disturbing effect on the patient, and, in the authors' opinion is inferior in this respect to the emetin adsorption product which, for the most part, can easily be tolerated. As their cases appear to show that not more than 50 to 60 per cent. may be regarded as possible cures after one course of twelve doses. Donaldson and his co-workers urge that the minimum course of twelve doses should be increased. As the unfortunate concomitant effects of B. E. I. preclude its prolonged use, they recommend that the emetin adsorption product should be used in its place as a routine treatment.

47. **Heart Reserve in Military Training.**—Johnson concurs that in carrying out a scheme for finding the limitations of heart reserve standard and varying physical strains would be necessary for the test. Marching progressive distances, parades, physical exercise to pick out the weaklings and, for those who showed ability for severe strains, doubling on the level and uphill. Therefore, he suggests that an old but reliable test might be applied: that of taking the pulse rate before the test, allowing three minutes to elapse, or for the more severe strains five minutes after the test, and then timing the pulse rate again. If, after comparing the results, it is found that the pulse rate is accelerated, this man is doing too much; repetition will only lead to further dilatation of his heart, and he should be put to training involving less strain. The test for any but those who have managed the severest tests should be applied at intervals of from one week to one month, according to the requirements of the case. Thus, each man would be trained according to his capabilities, and there would be no opportunity of deceit or fraud on the part of the man under observation. A method such as this would not throw much extra work on the medical department, but would rather turn their energies from dealing with men broken with bad training to the prevention of crowding the hospitals and the everlasting "Attend B." (or no duty). Medical orderlies could easily be instructed in timing the pulse accurately, and referring those who failed in physical test to the medical officer.

52. **Diagnosis of Meningism.**—Gillett analyzes sixty-five cases. Rash was absent in forty-eight; ten showed a diffuse scarlatiniform rash, observed between the seventh and twelfth days of disease. Petechial hemorrhage was apparent in three, one being very profuse. Four cases presented a papular rash within the first five days, the earliest observed being on the first day of disease. The pulse was extremely variable, no two cases being alike; increased in fifty-eight and keeping about normal (70 to 90) in the remaining seven cases. Features common to all were irregularity and variability, the frequency rarely being as high as the temperature would lead one to expect. An irregular, quickly variable pulse is nearly always present when the disease has obtained a firm foothold. In the majority of cases (fifty) the temperature rose suddenly to a height varying from 101 to 105. In eleven cases the rise was more gradual, taking from eight to sixteen hours to register above 100, and four cases were entirely afebrile. Headache was always present, but only in twenty-three cases was it definitely allocated to the occipital region, the remainder showing a general ache all over the head of a severe and, in a few cases, unbearable nature.

The general appearances in the majority of patients was typical: A flushed face of a slightly dusky tinge, and an extremely worried and anxious expression, coupled with dulness and apathy. General malaise and, in a few cases, a very definite nasopharyngeal catarrh, such as precedes measles. Vomiting was absent in thirty-two cases. Herpes, when present, always affected the lips, but fifty-two cases showed no sign at all of this affection. The pupils: Two main features were noticed in all cases as being constant: (1) dilatation generally equal, sometimes unequal; (2) reaction to light, always sluggish. Strabismus was absent in fifty-six cases; nystagmus, absent in fifty cases; ptosis, absent in fifty-five cases; conjunctivitis, absent in fifty-five cases; suppurative choroiditis was present in three cases. The knee jerks were absent in sixteen cases; Babinsky, present in twenty-three cases; abdominal reflexes absent from the first in fifty-six cases. A leukocytosis was present in all cases. The counts varied from 28,000 to 32,000.

Stiffness of the neck: This sign was of the utmost value. In no single case was the stiffness absent, varying naturally in amount from the severe type—giving later the true retraction of the head and perhaps opisthotonos—to the milder cases with comparatively slight stiffness, increased when the head is flexed. Definite retraction was observed in forty-two cases, but it was not a decided feature until a date varying from two to five days after the onset of the disease. Kernig's sign, too, was almost equally constant, there being only three cases in which it was not present from the first. The sign was bilateral in fifty-eight out of the sixty-five cases. These details make it quite evident that, apart from stiffness of the neck, no data whatever can, in the early stages, justify dogmatic diagnosis. A more constant clinical aid is lumbar puncture, and its resulting bacteriologic investigation. Gillett urges that lumbar puncture should be performed at the earliest moment and not, as is often the case, only when the condition has become markedly indicative of meningeal irritation. It can do no possible harm; and, on the other hand, the value of such a procedure is incalculable. He suggests that this course be adopted more frequently in patients presenting a fever of uncertain origin, manifesting the general appearance and condition as noted above.

Archives Médicales Belges, Paris

December, 1917, **70**, No. 12

53 *Eye Symptoms with Spirochete Jaundice. Moret.—p. 1105.
54 Present Treatment of Syphilis. B. Dujardin.—p. 1116.
55 *Vocational Training of the Maimed. R. Van Roy.—p. 1133.
56 *Localization of Pulmonary Tuberculosis. A. de Marneffe.—p. 1139.
57 Strangulated Hernia of the Lung. P. Van Reeth, J. Voncken and M. Stassen.—p. 1142.

53. **Ocular Disturbance with Spirochetosis Icterohemorrhagiae.**—Moret found disturbances on the part of the eyes in all the severer cases among the seventy-two patients with spirochete jaundice in his service at the Belgian military hospital at Bourbourg, to which all the jaundice cases in the Belgian forces were sent. During the acute phase, the tendency to congestions involves the membranes of the eyes, with sometimes hyperemia of the deep membranes. This seems to be due to disturbance in the suprarenal control of the blood vessels, not to an inflammatory process in the eye. There may be hemorrhages in the eye membranes. The spirochete has been known to settle in the iris and induce iritis. During the stage of anemia the eye may show the changes liable with any severe anemia.

55. **Vocational Training of the Wounded.**—Van Roy discusses the measures to be taken when there is a chance that the man disabled by crippling can regain functional control of his wounded limb so that he can return to active or limited service. This functional restoration should be aimed at from the very first, and measures to realize it should accompany the physiotherapy without any interval. Institutions devoted to those capable of recuperation should not waste time on the severely wounded, who require vocational training. Dr. Hullin, in charge of the medical department of a Belgian accident insurance company, sets the injured man to work again at his trade at the earliest possible moment, having him work mornings only, and spend the afternoon at the institute for physiotherapy, but paying him the full sick benefit all the time. Van Roy exclaims "How many cases of cicatricial retraction and contracture might have been avoided if, instead of keeping the men in the hospitals, convalescent homes, etc., they had been invalided on 'convalescence leave' not to loaf, but on 'leave for compulsory work,' compelling them to work at their old trade for a specified part of the time." This not only benefits the man, but would help to relieve the scarcity of man power. When the wound is such that full recuperation is out of the question, garden or field work is the best all-around preparation for vocational training. Convalescents do not belong in city institutions; gardens and fields are indispensable. The tendency in the hospitals to keep the wounded until they are fully restored, should be vigorously combated. In the hospital, the wounded man takes much longer to recuperate his physical strength, his resilience and his endurance, while the interests of the country suffer.

When the maiming is such as to render full recuperation out of the question, the aim should be all for after-the-war. It is advisable, he reiterates, to adapt the man to resume his old trade rather than to train him in a new one. He learns better and quicker, and he has a better chance to get along among his old friends and mates. In short, vocational training of the wounded differs as it is for army or civil life, for functional restoration, for physical reeducation, or for vocational training of those absolutely unable to work at their former trade. He has seen men whose legs had been amputated who had successfully returned to their trade as a baker.

56. **Localization of Pulmonary Tuberculosis.**—De Marneffe recalls that every time the muscles of the arm contract forcibly, the respiration is modified. The respiratory expansion of the chest, corresponding to the group of muscles involved, grows less during the moment of their strong contraction. The effect is felt most in the apex region of the chest on that side. This checking of the expansion of the chest can be observed with whole series of the ordinary movements of life, at table or horseback, in school and workshop. The right hand is employed for all vigorous movements, and the right apex thus feels their effect first and foremost. The violinist, on the other hand, grasps his violin with the left hand, and the muscular effort to hold the violin firm is felt by the left apex. Marneffe advances this theory to explain the localization of pulmonary tuberculosis, adding that by avoiding the special muscular efforts which tend to check the expansion of the chest on that side, we aid in warding off tuberculosis. Exercises which at the same time lift the clavicle and the first ribs, avoid this deleterious influence. Among the exercises of this kind are the raising of the hands to the clavicles, to the back of the neck, vertically above the head, etc.

Correspondenz-Blatt für Schweizer Aerzte, Basel

June 8, 1918, **48**, No. 23

58 *Compulsory Insurance against Accident and Sickness in Switzerland. H. Zangger.—p. 753. Concluded in No. 24, p. 796.
59 *Accident Insurance and Ophthalmology. Vogt.—p. 762.
60 *Prophylaxis of Venereal Diseases. Bloch.—p. 768.
61 *Pneumothorax from Injury while Blocking Nerve. A. Vischer.—p. 772.

58. **Connection Between Accident and Disease.**—This article was the closing lecture of Zangger's course on the medical features of the new accident insurance legislation in Switzerland. He emphasizes the special points of difference in the medical aspect of the case, between single private insurance and collective compulsory insurance. Knowledge of the accident process, that is, of the etiology of the disturbances noted, is all important. If a fracture occurs from a comparatively slight force, we can assume some special cause in the body, and the prognosis is modified thereby, as we seek to discover the predisposing cause. He reiterates the importance of the first examination, determination of the causal connection, for the insured know well that if they can once convince the physician, mislead him from the start, it is practically impossible for their malingering to be detected later, because the true causal connection then can no longer be determined, and also because the courts depend so implicitly on the findings at the first examination. No matter what other reports may be made later, the courts depend on the first report. If concussion of the brain, for example, is specified in the first report, nothing that can be said later will convince the judge that there had been no concussion. Many insured workmen plot how to get the physician to accept a *Kausalzusammenhang,* and physicians must be on their guard against being exploited in this way. By uncovering these would-be malingerers they also serve the state.

Zangger has encountered one case in which thirty different physicians had taken the patient's statements at their face value, and had certified to severe injuries from insignificant accidents, so that the man had been paid "compensation" at least twelve times by different railroads and tram lines. The first report should include specification of the present status from the standpoints of etiology, prognosis and treatment, with the data on preexisting disease which introduced, occasioned or modified the accident. This includes the known affections, which might be concealed, the visible, which cannot be concealed, and the unknown affections, that is, those whose symptoms the patient misinterprets unconsciously or wilfully, or which had caused no symptoms until the accident, such as cerebral hemorrhage, perforation of the stomach, etc.

The Swiss legislation goes beyond any other in the world in accepting certain morbid conditions without visible manifestations as accidents entitling to compensation. This includes industrial poisoning from chronically acting poisons, such as is becoming more and more common during the war.

A causal connection seems more probable when several in the same factory present an acute disturbance, with little or no fever, and look badly, with discoloration of the skin. The physician must draw on his knowledge of medicine, toxicology, hygiene and natural science to aid in discovering the cause, as the workman himself very seldom knows what is inducing the trouble, and may mislead the physician with honestly meant but erroneous deductions—workingmen usually regard as poisonous only substances that smell badly or induce nausea. Several poisonous substances may have acted together, thus masking the symptoms from each. Elderly persons, children and the young, and those with cardiovascular disease may react to a poison in an entirely different manner from men in the prime of life. Nowhere else is the correct diagnosis so important for prophylaxis as with industrial poisoning. Sickness which is exclusively or predominantly traceable to a toxic acting substance ranks with industrial accidents in the Swiss law. Anthrax and glanders, on the other hand, have been dropped from the list for the present, but yellow fever, malaria, typhus and relapsing fever, befalling Swiss workingmen in the employ of a Swiss firm anywhere are regarded as entitling to insurance benefit, as they are the result of insect bites. Some of the private insurance companies have already paid indemnities to policy holders who had contracted typhus during the war.

In concluding this comprehensive study of ways and means to discover the causal connection in the insurance sense, Zangger warns of the danger of crime and suicide being managed so as to present the evidence of an accident entitling to insurance money. He relates instances in which the criminals were actually being paid by the state for their crime, as when a woman caused the death of her husband by closing the damper in the stove. In several such cases, some casual circumstance first suggested suspicion, not the physician's report. The physician had accepted matters as he had found them on the surface. The identity of the corpse must be verified, as otherwise the indemnity might be paid for some policyholder who had merely left the country. He has had occasion to examine eight cadavers in which death occurred in an epileptic seizure. The mouth and nose in one case were plugged with the wet sand in which the body was lying, and the tongue had been bitten, but the family denied that the man was an epileptic. Inquiry in his home town in Italy revealed that he had long been subject to epilepsy. In conclusion, Zangger reiterates that the Swiss social insurance is on a more comprehensive scale than in any other country. It places great authority in the hands of physicians, and its success depends on them and especially on their report at the first examination.

59. **Accident Insurance and Ophthalmology.**—Vogt discusses the injuries of the eyes of the insured which the general practitioner can treat, and those for which specialist treatment from the first is imperative.

60. **The Swiss Preventive Society.**—Bloch states that the present aim of the newly founded Swiss Preventive Society is propaganda and enlightenment of the public. The time is not yet ripe for placing the venereal diseases where they belong, namely, *on the list of communicable diseases requiring compulsory notification.* This, he says, is *Zukunftsmusik,* but in fact syphilis and gonorrhea are endemic diseases such as leprosy and smallpox once were, and they can be eradicated only by applying the same measures as have proved effectual with leprosy and smallpox. This would have been done long ago if it had not been for the fact that syphilis and gonorrhea have been exclusively labeled venereal, sexual diseases, burdened with the stigma of all the prejudices of centuries in regard to sexual life. Under the stress of war, the views on this subject have been materially modified in the last year or two in the belligerent countries, and the propaganda of preventive societies may modify public opinion along the same lines elsewhere.

61. **Pneumothorax from Injury while Blocking the Brachial Plexus.**—Vischer reports what he thinks is the second case on record of fatal pneumothorax from injury of the apex of the lung in anesthetizing the brachial plexus. The patient was a woman of 61, and the accident occurred while blocking the plexus preliminary to removing the breast, the seat of malignant disease. There was *no disturbance from it* at first, but symytoms of pneumothorax became apparent the second night, with death the *fifth night.* The injury of the lung was merely a prick, as was determined at necropsy. The needle introducing the anesthetic to block the plexus had punctured the left lung. Schepelmann reported a similar case in 1915 in which the threatening symptoms were arrested by introducing a trocar, into the pleura, over the outer end of which a rubber cot was tied. A slit in the rubber allowed expiration of air while the collapse of the rubber during inspiration closed the slit. The condition rapidly improved after three or four days. *In introducing the needle to block* the plexus, if the first rib is missed, the needle strikes the lung close to the plexus. The two cases related show that even the finest prick may be enough to induce fatal pneumothorax. Tracheal stenosis from a goiter may have contributed to the fatal outcome in this case, the inspiratory stridor hindering the closure of the minute opening, and also masking the symptoms from the pneumothorax. It is possible that an evacuating puncture might have saved the patient if the pneumothorax had been diagnosed earlier. The woman's heart was too weak to stand the strain.

Riforma Medica, Naples

June 15, 1918, **34**, No. 24

62 *Food Requirements. F. Bottazzi.—p. 461.
63 *Malaria. R. Secchi.—p. 466.
64 Botryomycosis in Man. E. Aievoli.—p. 469.
65 Necessity for Compulsory Course on Ear, Nose and Throat in Medical Curriculum. G. Gradenigo.—p. 476.
66 *Compulsory Insurance against Sickness. G. Cristalli.—p. 477.

62. **Food Requirements.**—Bottazzi protests against the tendency displayed by some recent writers to estimate at a lower figure the number of calories and the proportion of protein regarded as necessary for the soldier's ration. At the beginning of the war, the Italian soldiers' ration represented 3,013 and 4,182 calories, but this was soon reduced, and at one time it consisted only of 2,380 and 2,700 net calories. It has been increased since, but the calory value of the ration at present has not been made public. It probably *does not* reach the 3,000 and 3,600 net calories which the recent Inter-Allied Food Conference accepted unanimously as the standard ration for all the allied forces. The *proportion of fat* was accepted as 75 gm., or 100 gm. for the soldier on active service. Bottazzi reiterates that Chittenden was suffering from chronic rheumatism, and his conclusions should not be applied to healthy men. Bottazzi approves of reducing the meat ration for civilians, as they can make up the protein in other ways, and, in any event, the sacrifices should be made by civilians rather than by the soldiers.

"The navy has also been suffering from the application to them of Chittenden's estimates—forcing the sailors to eat according to what a man with chronic rheumatism and gout found to suit him best." Bottazzi protests further against the assumption that the men in the navy do not do as much work as the men in the army and hence do not need so much food. The passive and active movements on shipboard, the wind, the sea air, the sunshine, etc., intensify the metabolism and stimulate the appetite, to say nothing of the muscular exercise required in the care of the ship, etc. He cites a leading physiologist's statement to the effect that the ration in the Italian army, "as a result of action based on Chittenden's conclusions, was cut down in February, 1917, from 3,435 to 3,036 calories, a wholly insufficient amount for men on active service. It is impossible to avoid the conclusion that this under-feeding played a considerable part in the recent unfortunate events in Italy."

63. **Malaria.**—Secchi relates some experiences *which show* that men from nonmalarial districts were more susceptible to malaria when sent into a malarial country, than men from districts where malaria is more or less prevalent, but none were immune. He has been successful in treating malaria by giving quinin, 1.6 or 1.8 gm. of the bisulphate or 1.5 gm. of the hydrochlorid by the mouth *seven hours before* the time of the anticipated attack. This amount of the quinin is taken in three doses in the course of an hour and a half. This is repeated daily for six or eight days; *then it is suspended for*

five days, and then resumed for three consecutive days, and suspended again for five and so on for two months. Fowler's solution is given at the same time, from 4 to 20 drops a day. In cases with daily malarial attacks he gives the quinin at the time of the lowest temperature, both by the mouth and subcutaneously, remembering that the drug reaches its highest concentration in the blood in six or seven hours when given by subcutaneous injection. The results with this technic, he says, have been *insuperabilmente eccellenti*. Over 2,500 men with malaria have been treated in his service since June, 1915, and there was hemoglobinuria from intolerance in only two cases.

66. **Compulsory Insurance Against Sickness.**—Cristalli is an advocate of compulsory insurance of every one against sickness, with a fixed salary for the attending physicians, under civil service rules.

Anales de la Facultad de Medicina, Lima

May-June, 1918, **1**, No. 3

67 *Tumors in Mediastinum. E. Odriozola.—p. 203.
68 *Forensic Medicine in Peru. L. Avendaño.—p. 210.
69 The Various Functional Kidney Tests. M. A. Velasquez.—p. 234.
70 Nosography of Tropical Medicine. J. Arce.—p. 240.
71 *Psychotherapy. H. Valdizan.—p. 250.
72 Protozoon Found in Peruvian Lizard. E. Escomel.—p. 272.

67. **Tumor in Mediastinum.**—The experiences related by Odriozola teach the necessity for specific treatment as for syphilis whenever there are signs of a tumor in the mediastinum. This should be done even when radioscopy shows merely a nonpulsating tumor. The remarkable cures that follow when syphilis is a factor justify tentative treatment in all cases when pain, spasmodic cough, fatigue, difficulty in swallowing and supplementary venous circulation show compression by an encroaching tumor or mediastinitis.

68. **Forensic Medicine in Peru.**—Avendaño remarks that the teaching of legal medicine now enters on a new era in Peru with the completion of the new model morgue at Lima. He pleads to have this made the basis for an official institute of legal medicine. There is none to date in South America. He reviews the history of forensic medicine in Peru, which dates officially only from the beginning of the nineteenth century.

71. **Psychotherapy by the Nonspecialist.**—Valdizan comments that medicine began in prehistoric days as psychotherapy. "Ancient medicine was intuitively psychotherapic, and contemporaneous medicine is scientifically psychotherapic." The physician must strive in every way to maintain and enhance the patient's confidence in him, not for egotistic benefit but for the direct benefit of the patient. He warns that the physician should not depreciate his services or ascribe the success to Nature. It is better for the patient to have exaggerated confidence in the physician's skill, and ascribe his recovery to this alone. If the physician deprecates this excessive tribute to his skill, he can rectify the matter in speaking to the friends or family of the patient, but with the patient himself he should seek in every way to maintain the confidence and hope which are the precious product of a harmless error.

The listening to the patient's account of his sickness is a vital factor in winning his confidence. In the examination the physician should never let the patient see by his expression the emotions induced by the lesions encountered, as the patient is watching every gesture and expression. The diagnosis should never be said over the patient in making hospital rounds with visitors. In conclusion Valdizan reiterates that extrapsychiatric psychotherapy has triumphed in surgery even more brilliantly than in medicine, especially the results of Crile's research which marks an era in the annals of surgery, although the principle itself is nothing new.

Anales de la Facultad de Medicina, Montevideo

March-May, 1918, **3**, No. 1-2

73 *Gastro-Intestinal Disease in Infants. L. Morquio.—p. 1. To be continued.
74 Valvular Incompetency. P. E. Nuñez.—p. 126.
75 Associated Friedreich's and Pott's Diseases? A. Carrau and J. C. M. Fournier.—p. 138.
76 Capillary Ureometer for the Blood. P. Bonavia.—p. 150.
77 The Sodium Chlorid in Wassermann Test. A. Prunell.—p. 155.

73. **Gastro-Intestinal Disturbance in Infants.**—In this 125-page instalment of his serial comprehensive study of infant pathology, Morquio discusses the treatment for the different types of bowel derangement according as they are purely functional, or of dyspeptic, toxic-infectious or nutritional origin. He says of buttermilk that it has been used extensively in his service and that although the first enthusiasm has been much diminished, yet it is regarded as useful for certain indications, to supplement breast feeding, and in treatment of gastro-intestinal derangement, acute or chronic. A few children had to be kept on buttermilk exclusively all summer, as this was the only food on which they thrived. The older infants do not like the taste, and it had to be well sweetened for them at times. Fever on taking the buttermilk can usually be traced to an exacerbation of the toxic or infectious phenomena; the buttermilk is not responsible for it.

Archivos Españoles de Pediatria, Madrid

April, 1918, **2**, No. 6

78 *Fourth Disease. C. Aguilar.—p. 193.
79 *Thymus Death. J. Palancar and L. R. de Arcaute.—p. 208.
80 *Physiologic Value of the Tonsils. E. Prada.—p. 242.

78. **Fourth Disease.**—Aguilar presents arguments to show that the so-called fourth disease cannot be regarded as a morbid entity.

79. **Thymus Death.**—Palancar and Arcaute declare that microscopic findings are more conclusive as testimony than the mere size and shape of the thymus, in cases of sudden death for which the thymus seems to be responsible. In one of their two cases the thymus of the 4 months child weighed 28 gm. Except for a convulsion at 2 months, the child seemed healthy and the parents were young and healthy. The microscope showed indications of intense functional activity and proliferation. Another child in the family had died suddenly at the eleventh month, but the thymus was not investigated in this case. Their conclusion is that the thymus in certain cases may exert a toxic influence independent of any mechanical action. With hyperplasia of the thymus there may be perverted functioning, which may entail the gravest accidents. In their cases the lymphatic system seemed to be otherwise normal. This suggests that there is not the connection between the thymus and the lymphatic apparatus which some assume. Children have been born with hyperplasia of the thymus but the writers know of no instance of congenital hyperplasia of the lymphatic system. Probably the mechanism is not always the same in the cases of sudden thymus death, toxic factors in some and mechanical factors intervening in others. Perverted functioning of the thymus is most common and most evident in infants under the age of 16 months. The toxic action seems to be most injurious for the cardiovascular system. The microscopic findings in the case mentioned showed a remarkable number of subpericardial and subcapsular ecchymoses, one apparently in every terminal arteriole. The microscopic findings are illustrated and the literature on thymus death is analyzed.

80. **Tonsils in Childhood.**—Prada found the hemoglobin percentage very much higher after the tonsils had been removed, in his examination of thirty children before and after tonsillectomy. The better respiration and oxygenation of the blood after the enlarged tonsils had been removed amply explain this improvement in the blood. Tests by Abderhalden's technic, as to defensive ferments, confirmed the apparently insignificant rôle played by the tonsils in the organism of children, so far as our present means of research can determine. He advises tonsillectomy when the child is inclined to deafness, and also when the child has had diphtheria, as the tonsils are liable to harbor the bacilli long, as well as when the tonsils are subject to recurring inflammation or merely obstruct respiration.

Brazil-Medico, Rio de Janeiro

May 4, 1918, **32**, No. 18

81 Nematode Cucullanus Pulcherrimus. N. sp. A. L. de B. Barreto.—p. 137.
82 *Syphilis of the Liver. A. Pedro.—p. 138.

May 11, 1918, **32**, No. 19

83 *Superficial Epitheliomas. C. De Rezende.—p. 145.

82. **Syphilis of the Liver.**—The data presented show that in the first of Pedro's two cases, the syphilitic origin was evident, although the clinical picture was that of a typical case of Laennec's cirrhosis. Under treatment for the syphilis, the liver returned to clinically normal and there has been no further disturbance during the seven years since. In the other case, there was nothing to suggest syphilis and the diagnosis of cancer of the liver seemed certain, particularly as there was extreme cachexia. As a last resort, treatment for syphilis was tentatively instituted and the whole picture of the syphilitic hypertrophic hepatitis with chronic jaundice promptly subsided, and has shown no signs of recurrence during the five years to date. The diagnosis was made solely on the result of the treatment; in two months complete health had apparently been regained.

83. **Superficial Epitheliomas.**—De Rezende calls attention anew to the excellent results he has obtained in treatment of epitheliomas of the skin with a salve which penetrates rapidly into the tissues and requires no dressing to hold it in place. In five cases in the last three years the epithelioma of from three to six years' standing was completely cured with one or two applications a week, first removing crusts and dead tissue, and suspending the applications if the tissues around become inflamed. Illustrations are given of some of the cases. The formula calls for 0.20 gm. each of arsenious acid, copper sulphate, methylene blue and methyl violet; with 0.50 gm. quinin hydrochlorid; 0.75 gm. tartar emetic, and 1 gm. each of camphor, menthol, phenol and antipyrin. The last four ingredients are mixed together first. They deliquesce and form the vehicle for the other ingredients which are added in turn, leaving the methylene blue and methyl violet till the last. He describes the special function expected of each these ingredients.

Medicina Ibera, Madrid

April 13, 1918, **3**, No. 23

84 Exopthalmic Goiter. S. A. Echevarria and J. Blanc.—p. 29. Commenced in No. 22, p. 6.
85 Iodin in Therapeutics. S. Alvarez.—p. 31.
86 Importance of Early Diagnosis of Contracted Pelvis. D. G. Puente.—p. 36.

Siglo Medico, Madrid

May 18, 1918, **65**, No. 3362

87 *Trauma of the Urinary Apparatus in Relation to Workmen's Compensation. S. Pascual.—p. 384.

May 25, 1918, **65**, No. 3363

88 *Alimentary Disturbances in Infants. B. H. Briz.—p. 401.
89 *Vacuum Extraction of Cataract. B. Castresana.—p. 403. Commenced in No. 3362, p. 382.
90 *Retrovesical Echinococcus Cysts. A. Martin.—p. 406.
91 Differential Diagnosis of Tuberous Acne of the Nostril and Syphilids. Sicilia.—p. 407.

87. **Trauma of the Kidney.**—Pascual discusses two cases in which contusion of the kidney region was followed by nephritis, transient in one case and chronic in the other. In the transient case there is still some pain and tenderness in the region but nothing to suggest kidney disease otherwise, the urine findings being normal. The only thing to be done in such a case is to keep the patient under observation and examine him anew from time to time. Catheterization of the ureters is not called for merely by the slight painfulness in these workmen's compensation cases. Actual chronic nephritis can scarcely develop after a contusion of the region unless the kidney was already damaged at the time. Even if albuminuria and certain disturbance in the urinary secretion persist for years, this does not constitute actual Bright's disease. It is impossible, he says, to lay down any laws; each case has to be studied for itself, with minute and repeated examination to determine that the nephritis is not transient. The French evaluate the incapacity from unilateral kidney disease at 25 per cent. and bilateral at 50 per cent. This is too schematic, he declares, but it affords a basis on which the individual case can be estimated.

88. **Gastro-Intestinal Disturbance in Infants.**—Briz reiterates that breast milk contains ferments, antitoxins, alexins and agglutinins. On other milk the child is liable to have all its functions disturbed until it reaches an extreme degree of malnutrition although it may seem to be doing well at first. In one case a young mother gave her child the breast for ten minutes, watch in hand, following some one's advice. The child was unable to get enough in the ten minutes, and it was suffering from undernourishment, while the breast did not get enough work to maintain the lacteal secretion. In cases of extreme athrepsia, or decomposition, nothing but breast milk will answer. He has witnessed a number of actual resurrections when the child seemed moribund, as soon as it was given good breast milk, very little at a time at first. He supplemented this with a daily injection of 20 c.c. of sea water or a mixture of 8 parts sodium chlorid and 10 parts sodium sulphate in 1,000 parts water, with a few drops of epinephrin solution. Along with this he gave hot brine baths.

89. **Vacuum Extraction of Cataract.**—Castresana describes his comparatively extensive experience with Barraquer's pneumatic method of extracting cataract in the capsule. (It was described in these columns, Dec. 8, 1917, p. 2006.) Its great advantages are that the method can be applied without waiting for the cataract to ripen; there is no chance for secondary cataract to develop, while the procedure is gentle and effectual. The drawbacks are only that the opening has to be made a little larger than with other technics as the drawing out of the aspirating cup plus the cataract entire takes up room. Iridectomy he found indispensable to avoid injury of the iris in drawing out the cataract. So far as loss of vitreous is concerned, he could not see that this vacuum method had any advantage over the older technics, although others claim that there is less danger of this.

90. **Retrovesical Echinococcus Cysts.**—Martin reports a case of retrovesical cyst in a boy of 13 which he treated by aspiration of the fluid contents of the cyst through the rectal wall, followed by injection into the cyst of Van Swieten's solution. Very little of the antiseptic is necessary; the conditions for success are that the parasite is alive, and that the fluid can reach it by diffusion, however large the cyst. This method has proved completely successful in the four cases in which he has applied it to otherwise inaccessible cysts, no by-effects being observed and the cyst being evidently harmlessly absorbed in less than a month.

Hospitalstidende, Copenhagen

May 29, 1918, **61**, No. 22

92 *Sweating Sickness in Greenland. H. Kiær.—p. 721. Commenced in No. 21.

June 5, 1918, **61**, No. 23

93 *Renal Glycosuria. E. Jarløv and S. Kraunsøe.—p. 753.
94 Present Status of War Nephritis. O. V. C. E. Petersen.—p. 770. Commenced in No. 22, p. 736.

June 12, 1918, **61**, No. 24

95 *Medical Diseases of the Kidneys. V. Rubow.—p. 785.
96 Pathogenesis of Orthostatic Albuminuria. C. Sonne.—p. 800.

92. **Sweating Sickness in Greenland.**—Kiær describes several epidemics of miliary fever that have occurred in Danish possessions during recent centuries, especially in Greenland. The disease does not seem to spread in the towns as much as in rural districts. The phenomena observed seem to indicate that all affected get the disease from the same source. The M. Erichsen exploring party in 1902 had one member affected with the disease on the long sledge ride from the western coast of Greenland to Cape York, and the polar Eskimos at the latter place then developed the disease, with thirty victims among the 200 members of the tribe. The disease may simulate meningitis or poliomyelitis at first. In treatment, a hemostatic injection of serum and saline infusion seem almost the only reliable measures in treatment, but the physician must be on his guard against the disease himself. The French advocate ferric chlorid. In Greenland the prognosis on the whole was benign, but the epidemics are capricious.

93. **Familial Renal Glycosuria.**—This communication describes in minute detail several cases of high sugar content of the urine with normal sugar content of the blood, all in one family. One young man had probably had the glycosuria for seventeen years; it was casually discovered during an

attack of febrile jaundice after pneumonia in the boy of 4. But he had always been healthy otherwise, except for an intercurrent scarlet fever at 16, and was fond of athletics. The glycosuria did not seem to be modified by restriction of carbohydrates, but when the diet was of an antidiabetic nature, acetone appeared in the urine. This acetone content was still more marked in this young man's cousin, who had been treated for severe diabetes in boyhood and returned ten years later for treatment, as his physician in Hamburg had advised him to return to Denmark as it was impossible for him in Hamburg to obtain the fat he needed in his diet. Closer analysis of the case, however, disclosed none of the characteristics of diabetes to correspond to his high glycosuria, and the metabolic findings over long periods are tabulated and compared with the diet. On a milk diet, at the age of 8, the urine contained 16 up to 44 gm. sugar, a range of from 2.5 to 4.5 per cent. Under three months of hospital treatment, he gained 1,200 gm. in weight but the sugar content of the urine was still 1.8 per cent. when dismissed, and there were traces of acetone. He returned a year later with 5 per cent. sugar, and again this was reduced under treatment, but with the appearance of diacetic acid and acetone, and sugar content of 1.6 per cent. by the end of the month. At 19 the percentage was 3.3, and this was reduced by antidiabetic diet to 0.5, but diacetic acid and acetone then were constant. The blood sugar content was continuously normal, and the patient's general health was constantly good. The glycosuria was only slightly modified by restriction of carbohydrates. Acidosis was never observed when the patient was on an ordinary diet, but it developed under antidiabetic dietary restrictions every time, and disappeared anew as soon as the ordinary diet was resumed. The young man's immediate family showed no tendency to glycosuria, but his cousin was the first case mentioned above, and this young man's brother has 1 per cent. sugar in the urine with normal blood content. The mother and one sister present alimentary glycosuria, but the father, three sisters and a nephew have normal sugar content of the urine. There is no history of actual diabetes or nervous or thyroid disease in the family.

In the two severe cases of glycosuria referred to above, the amount of sugar eliminated in the urine seems to be too considerable to be explained merely by extra permeability of the kidneys, and hence the term "renal glycosuria" is scarcely appropriate, but will have to answer for the present. Similar cases described by others are analyzed in connection with these cases. They all teach that attempts to banish the sugar from the urine by antidiabetic diet are not only unnecessary and futile, but that they are directly harmful, bringing on acidosis, during which the patients feel sick, while they are subjectively in the best of health on an ordinary diet. The cases teach further the folly of regarding every glycosuria as of diabetic origin. When the so-called juvenile glycosuria is seen to persist year after year without progressing and without impairment of the general health, this can scarcely be regarded as a disease, or as contraindicating marriage or life insurance.

95. **Medical Kidney Disease.**—Rubow remarks that the three main groups of medical kidney diseases are those due to epithelial degeneration, to glomerular nephritis, and to sclerosis of the vessels in the kidney. The blood pressure is inclined to go up as soon as the glomeruli become involved. He warns that if the blood pressure naturally is low, as frequently happens in the young, there may be a considerable rise in the arterial pressure while it still is within approximately normal range. In certain cases the high blood pressure is almost the only certain sign of pathologic conditions in the glomeruli, and he queries whether from this alone, along with the following hypertrophy of the heart, we can draw the conclusion as to serious damage of the glomeruli and sclerosis of the vessels. Functional tests of the kidney may prove misleading with negative responses, as the normal range of functioning in human organs is so great. Healthy kidneys are capable of at least three times the work ordinarily imposed on them. This explains the long latent stage with chronic kidney disease, and shows that ordinary functional tests may give apparently normal findings for a long time even with encroaching disease. Only when the test is applied up to the maximal limit of normal functioning, can the findings be depended on to reveal slight degrees of functional deficiency, and therewith the beginning kidney disease. It is difficult and possibly dangerous to apply a maximal test of this kind.

Even the determination of the residual nitrogen in the blood may prove misleading, if the residual nitrogen happens to be anchored in the solid tissues, in the liver, for example and is not circulating in the blood. Some deny the possibility of this, but Monakow's research in 1914 on this historetention of residual nitrogen not only confirmed it but showed that the residual nitrogen in the blood is an unreliable index of the amount retained. He had a patient with reflex anuria for five days, and the fifth day the blood showed 50 mg. percentage of residual nitrogen in the blood, corresponding to about 3 gm. nitrogen. When the anuria stopped, it was found that there had been retention of 62 gm. nitrogen, in addition, to 7.5 liters water. There must have been 55 gm. of nitrogen retained in the solid tissues; that is, the tissues were able to retain eighteen times as much as the blood. Determination of the residual nitrogen has proved useful in many ways, but it cannot be counted on to reveal incipient disease of the glomeruli. It is possible that applying the test in connection with maximal overburdening of kidney functioning may prove instructive. For example, one man of 53 with high blood pressure and hypertrophy of the heart had residual nitrogen in the blood, in the morning, 34 mg. per cent., but twenty-four hours after intake of 20 gm. urea, the figure was 62 mg. per cent.—a figure essentially higher than would be presented by a normal person under the same test. In a second case with apparently the same high pressure and enlarged heart, twenty-four hours after the intake of 20 gm. urea, the blood showed a residual nitrogen content only at the upper limit of normal.

The same conditions are inherent in the determination of chlorids. Only with extreme degrees of renal insufficiency is the chlorid content of the blood very high; the surplus is anchored in the solid tissues. When the glomeruli are unable to eliminate as usual, the consequent retention of urea and salt acts as a stimulant to extra functioning on the part of the glomeruli still capable of functioning, as these substances have a diuretic action. Another means by which the organism seeks to compensate the deficient glomeruli is by sending the blood through the kidneys under greater pressure. The rise in blood pressure and consequent hypertrophy of the heart occur early, and in many cases this alone answers the desired purpose of keeping renal elimination within practically normal range. The high blood pressure and hypertrophy of the heart, in combination with slight albuminuria, are therefore the bases for the diagnosis. Polycythemia may complicate kidney disease, and in the one typical case that has come to necropsy, chronic glomerular nephritis was found. The high blood pressure with kidney disease persists unmodified by repose in bed and dieting. The numerous transitional cases between glomerular nephritis and renal angiosclerosis show that there is no essential difference between them. The cardiovascular form may be regarded as a more or less protracted phase of a compensated stage of kidney sclerosis, while the uremic form is the stage of insufficiency when compensation is failing, or when from the first it has been inadequate. Death may occur from hemorrhage in the brain or from heart failure while the kidney trouble is still in the compensated phase. The findings in the kidney then will be quite different from those with death from uremia.

Norsk Magazin for Lægevidenskaben, Christiania

June, 1918, **79**, No. 6

97 *Retronasal Tumors. F. Leegaard.—p. 617.
98 *Autointoxication Psychosis. S. Dahlstrøm.—p. 648.
99 *Poisoning from Hexamethylenamin. Y. Ustvedt.—p. 657.
100 *Tubercle Bacilli in the Stools. T. Schram.—p. 661.
101 *Virulence of Diphtheria Bacilli in Convalescents. K. Utheim.—p. 678.

97. **Retronasal Tumors.**—Leegaard reports a case of primary sarcoma in the nasopharynx of a girl under 5. The first symptom was pain; vomiting soon followed and the

eyeballs protruded and were immovable while vision was soon lost and death ensued in less than three months from the first sign of trouble. There was extreme cachexia but no hemorrhage. Necropsy showed an extension of the sarcoma backward into the region of the sella turcica. In another case a boy of 15 presented a tumor in the nasopharynx which proved to be a lymphangiomatous myxofibroma and was successfully removed. There had been no bleeding and the lad seemed otherwise normal, except for a tendency to nocturnal enuresis. The tumor was 6.5 cm. long by 4 cm. wide. Two years later he returned with a recurrence of the fibroma which was likewise removed. This tumor was 10 cm. long by 8 cm. at the widest portion; it was removed through the mouth. It proved impossible to anesthetize the patient by the usual technic as he had evidently become accustomed to get along with the minimum of inhaled air, and it was necessary to give the anesthetic through a tracheal cannula. Leegaard has encountered seventeen cases of juvenile fibromas, and tabulates the details of the fourteen operative cases, including one with recurrences through several years compelling four operations. His experience confirms the general assumption that these fibromas start as a rule in the body of the sphenoid bone, especially in the sphenoid-ethmoidal recess—always within the nose area. These and six other cases observed in the Rikshospital were all males, and all were in the fibroma age, that is, between 10 and 20, with one exception, a boy of 6. There does not seem to be anything to suggest a connection between the tumors and the pituitary body. Spontaneous involution is possible, but not to be counted on while the growth of the tumor may injure the adjoining tissues beyond repair. In one of his cases neither the clinical course nor the findings at the operation suggested this, but necropsy showed that the bone had been eroded and that the growth had spread inside the cranial cavity. He cites further Ingals' case in which the tumor had completely subsided so that not a trace could be found of it fifteen years after the first observation at the age of 13; but in the meanwhile the young man had become blind in the eye on that side. The actual cautery and electrolysis might induce hemorrhage, and fatalities are known with them. In any event they had better be reserved for cases approaching the immune period, the twenty-fifth year. Two of Leegaard's patients died and one of Wolfheim's three. Milligan has reported a case of death twenty-four hours after the operation, which he is unable to explain; there was very little bleeding. In other fatal cases the death was ascribed to the combined effect of the chloroform and bleeding. Leegaard queries whether local anesthesia may not prove important progress. Denker's method seems to have obvious advantages for removal of retronasal tumors, but it is wise to loosen up the tumor all around before attacking the tumor tissue itself; when it can be removed whole there is much less danger of hemorrhage, which otherwise hampers the operation. When the last scrap of the tumor is removed, the bleeding may stop at once. Among his fourteen cases four developed otitis after the operation. This suggests the necessity for not leaving the tampon any longer than is strictly necessary; it cannot be dispensed with altogether.

98. **Psychosis from Autointoxication.**—Dahlstrøm reports the case of a young sailor who within two days became unconscious and then delirious, with pulse of 48 to 56. Under a purgative he voided nine liters of stools and the next day three more liters, after which there were no further signs of the psychosis. Winge has reported a similar case in which the pulse was 40 during the psychosis, and it subsided as the enormously overloaded bowels were cleared out.

99. **Toxic Action on Kidneys from Hexamethylenamin.**—Ustvedt had prescribed the drug for a man of 31 with poliomyelitis symptoms for two days: five 1 gm. doses during the night, four similar doses the next day, and three the following night. At noon of this day the urine was dark red with blood but there was no vomiting or headache, although the poliomyelitis pains persisted after the medication as before. The urine showed blood and albumin for five days after this total of 12 gm. hexamethylenamin in the course of thirty-six hours. No effect on the poliomyelitis symptoms was apparent.

100. **Tubercle Bacilli in the Feces.**—Schram tabulates the findings in eighty-five cases, confirming the common occurrence of tubercle bacilli in the stools in advanced, especially febrile pulmonary tuberculosis. Reh's ether method is a simple and reliable method to determine their presence. The scrap of stool is mixed with distilled water and ether is added, in an Esbach tube. After the tube is well shaken and the coarser particles have sunk to the bottom, the ether extract is centrifuged and the sediment is dissolved in a little ether and spread on a slide. Positive findings are seldom encountered in the earlier stages of tuberculosis in adults.

101. **Virulence of Diphtheria Bacilli Found in Convalescents.**—Utheim has found the bacilli pathogenic for guinea-pigs in convalescents and carriers. The bacilli were cultivated from the secretions of the nasopharynx on beef serum, bouillon and Thiel's medium, sugar agar, etc., and the guinea-pigs were injected intradermally with a loop of the serum culture suspended in 1 c.c. salt solution, 0.01 c.c. being used for the injection. In forty-eight hours there is necrosis at the spot in the positive cases, and when this is thrown off an ulceration is left. One or two of the 125 strains were thus injected in each guinea-pig, and positive results were obtained repeatedly in every one of the seventy-nine convalescents up to the sixtieth day of the convalescence, and also in the eleven chronic carriers. The bacilli isolated from two healthy children from an institution where diphtheria had not been known for over a year caused no reaction in the guinea-pigs. Eighteen of the total ninety-two children had diphtheria bacilli in the nasopharyngeal secretions when they were dismissed from the hospital, but no return cases have been known from them during the year since. Utheim cites further the conclusions adopted by various health boards, etc., in respect to carriers. Everything points to the conclusion that the factor of individual susceptibility has to be considered as much as the virulence of the bacilli. With undiminished virulence, the diphtheria bacilli have to meet a susceptible individual before the disease can develop.

Ugeskrift for Læger, Copenhagen

June 6, 1918, **80**, No. 23

102 *Tracheitis. J. Møller.—p. 905.
103 *A Typhoid Bacilli Carrier. E. Lenstrup.—p. 911.

102. **Tracheitis.**—Møller remarks that most cases of tracheitis are mistakenly diagnosed as "pharyngitis and nervous cough." In all his experience he has never encountered a case of a purely nervous cough; some lesion could always be discovered by looking for it. The tracheitis induces coughing and hawking, mostly mornings, the rest of the day being free from cough, except in the severer cases. The characteristic cough with acute tracheitis comes on at night when the patient gets warm in bed, and it keeps up for a half hour or hour until a small amount of sputum is coughed up. This may return several times during the night and again in the morning. The cough may be spasmodic so that in children it may be difficult to distinguish between tracheitis and whooping cough. In the severer cases, the cough returns periodically as a small amount of sputum accumulates. Hoarseness is another symptom of tracheitis. The accumulation of phlegm on the vocal cords is the cause of the inability of certain singers to sing in the morning, but respiration is not impeded with pure tracheitis. In treatment, the main thing, he declares, is change of climate, the mountains, a sea voyage, but if this is impracticable, medication should aim to promote expectoration or check the irritation in the throat, with inhalation of a fine spray of some solution of ethereal oils, eucalyptus or balsamics. Painting the throat with iodin or mercuric chlorid or silver nitrate is of not the slightest use when the trouble is in the trachea. Warm drinks may be useful, and cautious exercising of the speaking and singing voice may aid in the cure. Often a little exercise in singing may conquer the last traces of the tracheitis.

103. **A Typhoid Carrier.**—A woman contracted walking typhoid in 1894, and has been responsible for cases of typhoid in her vicinity in 1895, 1904, 1913, 1917 and 1918. The agglutination test was positive, but only one of repeated examinations of the stools. Evidently the elimination of the bacilli occurred only at long intervals.

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RESPONSIBILITY OF NATION, STATE AND COUNTY FOR RURAL SANITATION *

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When this paper was written, no appropriate action had been taken to retard or prevent the rapid disorganization of public health agencies incidental to our national plan of medical preparedness. At that time, it seemed almost futile to discuss any phase of public health administration. With reliable assurance that this matter of paramount importance, to wit, the maintenance of public health agencies during the war, would be properly dealt with in Washington during the past week, I have selected a subject of national scope and importance, once the maintenance of our public health agencies is assured.

My subject, the "Responsibility of Nation, State and County for Rural Sanitation," seems to be logically divisible into three sections: (1) the size and nature of the problem of rural sanitation; (2) the relative responsibility of nation, state and county for rural sanitation, and (3) the coordinate responsibility of nation, state and county for rural sanitation.

SIZE AND NATURE OF THE PROBLEM OF RURAL SANITATION

In size, the problem of rural sanitation has to do with 60,000,000 people, comprising 53 per cent. of our population, and 99 per cent. of the area of this country. It is the larger part of the general problem of sanitation.

In nature, rural sanitation is primary and fundamental to sanitation in general; in the natural order, the country and then the city. The city is made of wood and brick and stone and men and ideas—the built and the builders—all brought in from the country. The vital current flows from the country to the city. The urban settlement, village or metropolis, the little pond or big lake, is quantitatively and qualitatively what flows into it from the woods and fields. Purify the stream it its source, and the rural influx will not muddy the water for the health department, but will make it clear.

One more word with respect to the nature of the rural health problem: It concerns a population that both in knowledge and in means is least able to care for itself and, therefore, most in need of our consideration.

RELATIVE RESPONSIBILITY FOR RURAL SANITATION

The recent invoice of the vital resources of this country, showing 33 per cent. of the healthiest age group unfit for military service, one third of our force eliminated from the struggle before they could reach the trenches, is enough at this critical period of our history to raise the question of governmental responsibility. In this question of responsibility, unfortunately, like most questions of responsibility, there are several responsible agencies or divisions of government concerned. There are three divisions of government naturally interested in, and with means and opportunity to improve, and, therefore, responsibe for, rural sanitation. These three divisions of government are our primary and constitutional governments, our national, state and county governments. Here, then, the question of general responsibility shifts to one of relative responsibility. Which one of the three branches of government is most concerned, most responsible for rural sanitation, and, therefore, which one of the three divisions of the government should assume leadership in solving our rural sanitation problems?

In the first place, rural sanitation is a matter of profound interest not to one or a few, but to all of the states—it is a problem of national scope. Methods of solving this problem for one state are applicable to many, and the experiences of each state would be helpful and should be available for all the states through some central governmental agency or clearing house. The problem is not an intrastate but an interstate problem, a national problem from many angles.

Then again, the present international crisis makes the physical man power not of one or a few counties or states, but of the entire nation, a matter of national and fundamental importance. County and state lines have become almost imperceptible; our governmental powers have become united and solidified to the point at which the national government is stronger in influence, means and authority than ever; and with this greater strength goes greater relative responsibility.

Lastly, it may be said that the three governments are like partners in a firm. Their common property is the rural citizen. The national government is the largest stockholder. It owns sixty times more stock than the average state government, and three thousand times more stock than the average county government. The national partner is supposedly the best equipped in both means and understanding. If seniority, larger interests, and ability are factors in determining responsibility for leadership, then the question of greater relative responsibility rests with the national partner. The answer to this question will be the adoption and the inauguration by the

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* Chairman's address, read before the Section on Preventive Medicine and Public Health at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

federal government of a definite, comprehensive and adequate plan of rural sanitation. Such a plan will from the very outset recognize the principles of coordinate responsibility for rural sanitation.

COORDINATE RESPONSIBILITY FOR RURAL SANITATION

This principle of coördinate responsibility recognizes the interests and the obligations of the three partners in caring for their common property—the rural citizen. This means that (1) there must be a plan of rural sanitation satisfactory to all three interests—nation, state and county, and (2) all three interests must help, contribute of their energy and means, in carrying the plan into effect.

It is not sufficient, it is not right, for one of the partners to tell or to demonstrate to the other how to take care of the common interest. Demonstration is all right so far as it goes. It doesn't go far. And then it is a bit egotistic and distant; not a friendly helper. The show-you-how-to-do-it type of mind is good in a way, but the let-me-help-you spirit is your real friend. The present policy of the federal government with reference to rural sanitation is, to use the exact terms, "for demonstration purposes." The states and counties, the majority of the people of this country, are not satisfied and are never going to be satisfied with that half-hearted policy. Measured by its interests, the United States government is not fulfilling its obligations in its present demonstration policy for dealing with the problem of rural sanitation.

Fortunately for those of us who believe that this principle of coordinate responsibility means cooperative help on the part of all three governments concerned, we have with us the state public health agencies, recorded in strong resolutions adopted at the Conference of Secretaries of State and Provincial Boards of Health in June, 1917, and also two departments of the United States government, the Department of Commerce and the Department of Agriculture, the only two departments of the federal government, the Department of the Treasury excepted, that have to do with rural living conditions. The Departments of Commerce and Agriculture have been instrumental in securing legislation based on what is generally spoken of as the federal aid extension principle, which recognizes and puts into active service for the people this principle of coordinate responsibility of the three governments for rural welfare. The federal good roads act, under the Department of Commerce, and the Smith-Hughes and Smith-Lever acts for agricultural education, under the Department of Agriculture, are of inestimable value not only to the rural citizens of our country, but also to the entire country. This form of legislation, briefly, provides a federal appropriation to be equitably apportioned among the states, each state to receive its apportionment when the state appropriates a like amount. The combined federal and state appropriation is again appropriated to the counties of a state when the county appropriates one dollar for two received from the federal and state governments, and the combined fund, the contribution of the three partners, one third from each, is spent on a plan of work approved by all three participants.

If similar legislation were enacted to care for the problem of rural sanitation, the federal government would appropriate, say, from $1,000,000 to $2,000,000 annually to be apportioned to the various states and territories in accordance with the rural population and the square mile area of each state and territory, the state apportionment to be available to the state when the state-appropriated a like amount to that received from the federal government; and the combined fund would be apportioned to those counties of the state that would appropriate one dollar for two of the combined federal and state apportionment. The total fund then available for the county would be expended on a plan of rural sanitation submitted by the county to the state board of health, approved by the state board of health, and then submitted to and approved by the public health agency of the United States government. Such a plan would make available, almost at once, from $50,000 to $100,000 for county health work for the average state. Each state board of health would become a clearing house of information for all the counties, and the federal health agency would become a clearing house for rural sanitation for all the states. The question of coordinate responsibility of the governments for rural sanitation would be wisely, justly and satisfactorily answered.

ABSTRACT OF DISCUSSION

Dr. J. W. Schereschewsky, Washington, D. C.: There is no question about the great value of rural sanitation. The plan Dr. Rankin has proposed is a practical one, if it is possible to secure the necessary legislation. We have been endeavoring to increase the appropriations given by Congress for this purpose. The general statements made with regard to rural sanitation by the Appropriations Committee are to the effect that they conceive the function of the federal government in this respect to be that of a demonstrating agency, so that demonstrations of rural sanitation in various counties to show the great value of the work should be of sufficient educational influence to create a desire on the part of the people of the state to have this work carried on continuously. Of course, if from the purely legislative standpoint a proposition is made to finance the rural portion of the United States in health work, then, municipalities and larger centers might ask that the federal government contribute to the support of public health work of any kind all over the country. That is the general attitude which has been adopted by Congress. Now, as one who is intensely interested in this problem of rural sanitation, who appreciates as well as any one else that in the municipality we have the opportunity for mass action, for collective action, whereas in rural centers sanitary principles must be applied to a greater extent by the individual, it is evident that there is some difference in the situation when comparing the rural population with the municipal population. Again, the larger centers have very much larger financial returns from taxes, thus placing much larger sums at the disposal of the municipality of which a certain amount can be set aside for public health purposes. In the rural communities this is not the case. The principle of cooperative sanitation in rural communities is susceptible of legislative defense. However, to bring this about, it is necessary to convince Congress that such action is desirable on the part of the federal government. As a public health proposition, as a means of extending public health work, such a proposal as this should appeal from the legislative standpoint. A desire for such public health work must come from the people themselves. Government agencies are especially constituted to carry out the will of the people, and when the people direct them to do a thing, then they do it. For that reason all government agencies must, to a certain extent, rely on direction from the people for the execution of certain measures, although it is clearly their function, by educational and demonstration methods, to point out the desirability and the ways to improve health protection.

The United States Public Health Service has this great system of cooperation, so far as rural agricultural methods are concerned, with the states because there has been a definite demand on the part of agriculturalists for such action, and they have been able to make representations to Congress that such line of action was not only desirable from the economic view point, but that it had behind it the united demand of all persons from those rural sections. In similar fashion, to make progress along public health lines, if it is the desire of the people that public health measures shall be extended, then it is necessary for the people to come to the federal government with that demand. As soon as they make that demand I am convinced that the necessary funds will be forthcoming to permit the extension of public health work in any direction which it seems proper that it should take.

Dr. Otto P. Geier, Cincinnati: I wish that in closing the discussion Dr. Rankin would say just how he has conceived of making this a permanent factor in national public health work. I concede that we might, by interesting Congress, secure such appropriations. Under their present status the U. S. Public Health Service comes into communities only by invitation. The plan proposed would cost the government tremendous sums of money. If such subsidies would be expended in cities as well as in rural communities (for I doubt if you could make such legislation stand unless it did include cities as well as communities), we would then have the basis of a forceful federal supervision of all state health work. Would not this plan call for a new constitutional arrangement since the Public Health Service would actually impose its will in health matters on the various states? As I understand it, all experimental health work and surveys, etc., are carried on in the states on invitation of the communities where the experimental work is to be done. In other words, the Public Health Service cannot initiate health work within the borders of the respective states.

Dr. H. B. Hemenway, Springfield, Ill.: In England the Local Government Board is a national board. It exerts an influence on the local administration in this way: Every division of the state is supposed to have a health administration, and under certain conditions, practically those of agreement, the Local Government Board provides one-half of the expense for the salary of a competent health officer, but on condition that no man shall be appointed who does not have the approval of the Local Government Board, and that no man shall be removed from service without the consent of the Local Government Board. That is to insure the appointment of competent men. Arrangements may be terminated by the local health authority or by the Local Government Board at any time when they are satisfied that conditions are unsatisfactory. That scheme might possibly be worked out in this country.

Dr. John N. Hurty, Indianapolis: It is most desirable from certain points of view to appropriate money for the purpose of protecting public health, but we must go slow in mixing up government and state and county, and assembling and combining our appropriations for that work. It is a matter that ought to be considered thoroughly. Dr. Rankin considers county and rural sanitation as the same. Are they? Generally they are, but here is a county that has a large city in it; that city belongs to the state. Its entire powers are derived from the state. It cannot exist without the state. The same way with the county. So that that statement could be challenged, for not in all instances would we find county and country sanitation or hygiene to be exactly the same. We will have to take into account other considerations, otherwise we might be lost on that point. We must take a broad view from every point imaginable and not from only one.

Dr. James A. Hayne, Columbia, S. C.: The idea that the government should do this county health work does not mean that it should come down into our counties or our states and actually build privies and make sewer connections and perform the other functions of public health service, but at present what we need is education. Even doctors need education. I find it hard in my state to teach the doctors the fundamental principles of public health—harder than to teach the general public. The doctor has the impression that when he gets his degree from some institution he is an expert in public health. He decides whether it is necessary to report disease or not. What we want from the government is an educational campaign in our counties, and that costs a lot of money. We are at present spending in some of our small counties $9,200 on purely educational work, counties of only thirty or forty thousand inhabitants. Educational work does not mean writing pamphlets that are sent to the community in batches. Nobody reads them. Nobody pays any attention to them. We are interested in public health work, and we feel all the people should be interested in it, but they are not. Even the Council of National Defense does not recognize that public health work is a necessity. What is necessary is the same thing that is done by the farm demonstrator. He goes out in the field and talks with the farmer and gets the farmer's point of view and tries to turn the farmer's point of view to the right point of view. That is what the demonstrators have to do in the country, and that costs money. It means a house-to-house visit. It means catching the farmer when you can and catching the farmer's wife and all his children through the schools, and so forth, and teaching them. After a while they will learn, but it takes an awful long time and an awful lot of money. Our states are poor in public health spirit. For instance, I raised $112,000 in my county for Red Cross work. I found it impossible to get that same county to employ a two thousand dollar whole-time health officer because, they said, they were too poor. The same state that raised $25,000,000 for Liberty Bonds refused to make an appropriation of $20,000 for public health work because they were not educated up to it. How did we sell Liberty Bonds? Why did these people subscribe to the Red Cross? By a combined educational effort in every state and county. That is what we want the government to do.

Dr. W. S. Rankin, Raleigh, N. C.: I do not want to be understood as saying anything to discourage the U. S. Public Health Service in its demonstration work in rural sanitation. This work should be extended. However, we should recognize that the demonstration principle as followed by that service is very limited as an administrative measure as compared with the principle of governmental cooperation advocated in my paper. Just what the net result of the demonstration work in rural sanitation of the Public Health Service has amounted to I do not know. It would be interesting to know in how many counties this work had been carried on and how many of these counties had been influenced by this work in establishing permanent health departments. The question of including cities in the proposal set forth in my paper has been raised. There are two reasons for not proposing the inclusion of cities at present in this principle of governmental cooperation: (1) We have a precedent for rural work, none for urban work; (2) cities are more able financially to take care of themselves than rural districts. The per capita wealth of cities is from five to ten times greater than the per capita wealth of rural districts. The distribution of public funds by the government to those that most need help seems to be pretty well established. The question of centralization has been raised. According to the plan proposed, the initiative would always rest with the county. The county would come to the state with its plan of work. If the state approved the plan, the plan would then go to the Federal agency for consideration and approval. When approved by all three participants, the work would begin. Dr. Schereschewsky raises the question of the responsibility of governmental agencies for initiating legislation. Every county health officer, every city health officer here knows that he would be very far back in his work, comparatively speaking, if he had not undertaken to interest his people, the public, in what was needed in his field—if he himself had not taken the initiative. Dr. Schereschewsky knows that no successful state health agency nor successful city health agency sits still and waits for the public to take the initiative and leadership in the development of a health department. And if this holds true for states and cities, why should it not hold true for the Federal Government?

Illegitimacy in Norway.—National recognition of the rights of illegitimate children is for the first time afforded by the laws of Norway, according to a bulletin of the Children's Bureau. The state holds both parents equally and continuously responsible for these children in the matter of maintenance, training and education.

PNEUMONIA AT A BASE HOSPITAL

OBSERVATIONS IN ONE THOUSAND ONE HUNDRED CASES AT CAMP PIKE, ARK.*

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Since the opening of the base hospital at Camp Pike, Ark., in September, 1917, to April 27, 1918, there were admitted to the medical wards 1,285 pneumonia patients; 857 of these had lobar pneumonia and 428 of these had bronchopneumonia.

The majority of the cases in September and October, sixty-nine in number, were of the lobar pneumonia type, which we are used to seeing in civil practice, and I felt that the pneumonia question in military service was to be one of great interest and great hope, because of the comparatively low mortality in these months. Unfortunately, this opinion was rapidly changed, and in the following months the change was one which caused great anxiety and apprehension.

During the month of September there were no deaths from either bronchopneumonia or lobar pneumonia, and during the month of October, there were also no deaths from bronchopneumonia; but there were six deaths with a 10 per cent. mortality from lobar pneumonia. The cases observed in September and October were typical of the lobar pneumonia described in textbooks. There were the sudden onset with chill, high temperature, rusty sputum and well marked areas of consolidation. The cases of bronchopneumonia did not differ in any marked way and were essentially the same as those seen in civil practice.

In November there were 170 cases of lobar pneumonia and seventy-five of bronchopneumonia; in December there were 225 of lobar pneumonia and 139 of bronchopneumonia. The mortality of these two months of the lobar pneumonia cases was, respectively, 32 and 29 per cent., and of bronchopneumonia, 4 and 29 per cent. In January the mortality of lobar pneumonia was 29 per cent. and of bronchopneumonia 53 per cent. The percentages of deaths gradually declined, and up to April 27, 1918, the total percentage of deaths in lobar pneumonia was 28. The total percentage of mortality in bronchopneumonia was 26, and from both bronchopneumonia and lobar pneumonia up to April 27, 1918, it was 26.07 per cent.

It is difficult to give a definite reason for the difference in the mortality in the later months compared with that of the first two months. It is possible, first, that the large number of cases of bronchopneumonia that followed measles may have been a potent factor. Up to March 22, 1918, 33 per cent. of all pneumonias were those that followed measles. There were in the hospital up to the middle of April, 1918, 3,100 cases of measles. Secondly, in wards in which there have been a great number of patients with respiratory diseases, the streptococci undoubtedly gain in virulence by their passage through the human host. Thirdly, because of the large number of patients in a ward who are infected with streptococci, it must undoubtedly follow that the patients in that ward are receiving a larger number of organisms than they otherwise would.

Many of the cases of bronchopneumonia have begun with the most trivial subjective symptoms and with practically no objective signs. These men have been sent to the hospital because they have been coughing for a few days and have had a rise of temperature with a rather severe headache in the majority of cases. Many of these patients, on their entrance to the hospital, say that they are not feeling ill and should not have been taken from their duty.

The physical signs are trivial and slight. In the majority of cases a few fine, moist râles are heard, usually at the back and near the angle of the scapula. This may occur on one or both sides. On percussion this area shows a slight amount of dulness. These are often the only physical signs present, and there are no subjective complaints of any kind, except a slight cough that is nonproductive. Examination made of the same patient from twelve to twenty-four hours afterward will often show a disappearance of these objective signs. The same patient examined in another twelve to twenty-four hours will show in the same area well marked consolidation with an increased number of moist râles and often bronchovesicular or tubular breathing. The fever is usually not high, rarely going above 103. The pulse is not very rapid and does not become so during the course of the disease.

Unusual and peculiar as it may seem, the large majority of these patients do not present a respiratory distress of any kind. There is practically no dyspnea until dissolution approaches.

Cyanosis, in our series of cases, is very rare and has been seen in only about 2 per cent. of the fatal cases.

At first there is no expectoration; it gradually becomes more free, but has always been moderate in amount. In practically all cases, the sputum is mucopurulent, though at times it is streaked with blood. In this connection it is interesting to note that at times the amount of blood in the sputum has been so extensive that it might easily have been mistaken for hemoptysis due to tuberculosis of the lung, but on postmortem examination, tuberculosis was proved not to exist. In none of the bronchopneumonia cases has the sputum been rusty in color, nor has it had the gummy consistency seen in lobar pneumonia.

In contradistinction to this mild type of bronchopneumonia, we have had a most malignant and fulminating type, which is illustrated by Case 1:

Case 1.—Private M., who was drilling in the afternoon, complained of feeling slightly ill. He entered the hospital at 7 o'clock that evening and died next morning at 6. On examination, he presented practically no signs of pneumonia, except a few moist râles which were distributed over both lungs and not confined or isolated to any particular part of the lung. He did, however, show the following signs of meningitis: headache, depression, hyperesthesia and stiff neck. There was no rash, no Kernig sign, no Babinski reflex, no Oppenheim sign and no Gordon reflex. The diagnosis of bronchopneumonia was not made before death on account of the trivial findings. The postmortem examination disclosed a small number of bronchopneumonia patches in the left lung and in the lower lobe of the right lung. There were no signs of meningitis. There was an acute and well marked lymphadenitis of the bronchial lymph nodes. There was a cloudy swelling of the liver and kidney and an acute splenitis.

I have had to change in a very decided way my previous ideas of the occurrence of bronchopneumonia. We have had many cases in which there were signs of bronchopneumonia only in one lung, and we have had some cases in which there was a bronchopneumonia in one lung and a lobar pneumonia in the other lung.

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* Read before the Section on Practice of Medicine at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

In case 2, both lobar and bronchopneumonia occurred:

CASE 2.—Private B., admitted to the base hospital, March 26, 1918, had become suddenly ill the day before, with pain over the lower chest and abdomen, and with sore throat, cough and mucopurulent expectoration. There were definite signs of consolidation of the entire left lung and many coarse, moist râles all over the right lung, with a few small areas of tubular breathing. The patient was evidently very ill; his temperature on entering the hospital was 104, and remained at about this point until the day of his death, when it dropped to 101.8. The respiration on entrance was 38; on some days it was as low as 28, and did not go above 44 until shortly before he died, when it went to 46. The highest pulse rate was 122, and the lowest was 86, on the fourth day of his illness. The patient was very toxic, and death occurred on the fifth day after admittance; sputum culture revealed the Type IV pneumococcus and the *Streptococcus hemolyticus*. Necropsy disclosed lobar pneumonia of the entire left side; serofibrinous pleuritis of the left side, with fluid enmeshed in the fibrin; bronchopneumonia of the right side, most marked in the lower lobe; bilateral purulent bronchitis; cloudy swelling of the liver and kidneys, and the spleen not enlarged but soft.

Empyema has occurred in 9.002 per cent. of the total number of pneumonia cases. It has been a most difficult matter to detect the presence of fluid, and because of this difficulty, exploratory puncture is made in every case in which the physical or constitutional signs indicate fluid or pus. There is a standing order in the pneumonia wards that roentgenoscopy be performed in all cases of pneumonia in which there is the slightest suspicion of fluid, and in every case of pneumonia at the expiration of fourteen days.

In some cases it is impossible to detect the formation of pus. This is especially true when an isolated abscess cavity is formed by adhesions between the pericardium and the visceral and parietal layers of the pleura near the median line. In other cases the pus is contained in a fibrinous exudate, which acts not unlike a sponge, and confines the pus and limits its border as definitely as if it were surrounded by a coffer-dam.

At times, the formation of pus is so slow that its presence is almost impossible to discover, for in many of these cases it simply plasters itself over the surface of the lung in a layer that is about one-half inch thick, so that the signs of the consolidated lung beneath it are transmitted through this layer, and there are no signs of the presence of fluid. In a recent case, fluid had developed in what to us was a unique position. It enveloped and entirely covered the top of the right lung, fitting over it and displacing it down to the third rib in front and the fourth rib behind, capping it as an extinguisher does a candle. The upper lobe was pushed downward, forward and inward and accounted for the increased tympany, which was found on percussion over and to the right of the sternum. The fluid was held in this peculiar and elevated position because of the dense adhesions, which existed in the whole of the pleural cavity below it. The formation of this fluid was extremely rapid, for over the area occupied by the fluid and twenty-four hours before death, there were all the signs of a consolidated lung with well defined tubular breathing. The breath sounds gradually became fainter and a tympany developed near the right margin of the sternum from the third rib downward. These were the only signs that were found, and their significance was misinterpreted. On the other hand, there were cases in which empyema developed with a tremendous rapidity. Fortunately, in the majority of these cases all the signs were well marked; and when the other clinical signs were not well marked, our most helpful sign was the displacement of the apex beat. The care of both of these types of empyema, from the surgical standpoint, will be described by Major Hugh McKenna, M. R. C.

Of the sputum examinations that have been made, 48 per cent. of the pneumonias have been due to the pneumococcus, of which there have been 21 per cent. of Type I, 34 per cent. of Type II, and 45 per cent. of Type IV. Streptococci have been found in 46 per cent. of the total number of cases. Of these, 46 per cent. were nonhemolytic and 54 per cent. were hemolytic.

In Ward 1, twenty-three blood cultures have been taken from patients in whom the clinical diagnosis was pneumonia. The blood cultures were taken as soon after admission as possible. The time of cultures relative to that of the prodromal symptoms ranged from three to seven days. Of the twenty-three cases examined, six gave blood cultures showing the *Streptococcus hemolyticus*. In none of these positive cases was the diagnosis of empyema made at the time or prior to the taking of the blood culture. In one case a blood culture was reported positive; but neither clinical examination, the exploratory needle nor the roentgen ray revealed the presence of fluid in the pleural cavity. A few days later, however, the exploratory needle revealed fluid which contained the same streptococcus as was secured from the blood. Three patients with positive streptococcus findings in the blood developed empyema. Two of the cases developed in the pleural cavity, the fluid containing the *Streptococcus hemolyticus*. In all of these cases the blood culture was taken not later than seven days after the onset of the disease, and in none of them was the patient in a serious or moribund condition when the culture was taken.

The incidence of complications has been somewhat peculiar. During the months of October and November, 90 per cent. of all pneumonia patients had herpes of some kind, whereas in the following months and up to the present time, herpes is practically unknown.

Many patients have been received at the hospital with the diagnosis of meningitis and have been considered as having meningitis until a spinal puncture proved the error. On entering, there would be no clinical signs of pneumonia, but there would be many of the signs of meningismus, that is, a stiff neck, Kernig sign, severe headache, mental hebetude and hyperesthesia; but on lumbar puncture, the spinal fluid was found to be negative in every way. In a few hours, well marked signs of pneumonia would develop, and in those that have come to necropsy, there has not been found any objective sign of meningitis.

A large number of cases, for some hours, simulated appendicitis; and only after waiting for clinical signs to develop has it been possible to show that these cases were pneumonia and not appendicitis.

Jaundice has not been infrequent and, in the negroes suffering from pneumonia, has taken place in 10 per cent. of the cases. About 5 per cent. of all pneumonia patients have had fibrinous pericarditis. There have been three cases of purulent pericarditis.

Pneumothorax has occurred five times, on one occasion accompanied by pus in the pleural cavity, but this was complicated with chronic tuberculosis. Two cases in the service were diagnosed as pneumothorax and were demonstrated as such to various members of the medical staff, because of the remarkable coin sound that was present. Both of these cases came to necropsy, and it was shown that pneumothorax did not exist and that the coin sound was due to a distended colon. The coin sound in both of these cases was present up to and over the second interspace of the left side and throughout the whole of the axillary space.

Otitis media has occurred frequently, and in many cases has been followed or accompanied by mastoiditis. Strange as it may seem, mastoiditis has occurred and been found postmortem without having given any objective or subjective signs during life.

PERCENTAGE OF INCIDENCE OF PNEUMONIA TO THE TOTAL NUMBER OF MEN IN THE CANTONMENT

Month	Per Cent.
October, 1917	0.31
November, 1917	0.78
December, 1917	1.10
January, 1918	0.73
February, 1918	0.34
March, 1918	0.52
Average	0.65

The percentage of the incidence of pneumonia to the total number of men in the cantonment for the months from October to March is rather interesting, and is given in the accompanying table. It is hard to say definitely what is the cause of the high incidence of pneumonia at this camp. For the first four months, the physical condition of the men was very poor; a tremendous amount of dust was present; many of the men had the habit of going to bed in their wet underclothes without properly covering themselves, and sudden changes of temperature took place. Undoubtedly by this exposure they were made more susceptible to respiratory infections. The large number of men suffering from measles predisposed them to infections of the respiratory tract. In addition, practically in every one of these men there were enlarged tonsils. The teeth and gums also were in a very bad condition. The factors mentioned above, namely, measles, the physical condition of the men, the large amount of dust, and carelessness in barracks, together with the exposure and fatigue, must all be considered as factors in the incidence of the different pneumonias.

SUMMARY

Probably the three most potent factors in the predisposition to pneumonia in this camp were:

1. The large number of men suffering from measles.
2. The large amount of dust.
3. Carelessness of the men in their barracks, giving rise to what were at first minor respiratory infections.

These three factors all give rise to coryza, laryngitis, tracheitis or bronchitis and so cause conditions predisposing to infections that ultimately may result in pneumonia.

Importance of a Sanitary Code.—As a basis for the activities of the health authorities, a sanitary code or set of rules and ordinances or regulations should be promulgated. These regulations should be prepared with extreme care and permit of intelligent application and enforcement.—P. A. Surg. Paul Preble, *Public Health Reports*, March 2, 1917.

EPIDEMIC OF STREPTOCOCCUS PNEUMONIA AND EMPYEMA AT CAMP DODGE, IOWA *

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CAMP DODGE, IOWA

From Sept. 20, 1917, until May 10, 1918, 675 patients, whose cases were diagnosed as lobar pneumonia, have entered the base hospital at Camp Dodge, Iowa. This does not include a limited number of cases diagnosed clinically as bronchopneumonia. At necropsy, however, not infrequently it was found that, in reality, we were dealing with a confluent bronchopneumonia which was localized chiefly or entirely in a single lobe. Inasmuch, however, as these cases, if necropsy had not been performed, would have been placed on record as lobar pneumonia, they have been so considered in this discussion.

Although measles was quite prevalent throughout the entire winter, pneumonia as a complication was very infrequent; only since about May 1 has pneumonia as a complication of measles reached any considerable number, and this period is not connected with the epidemic of streptococcus pneumonia, which at the time mentioned was on the wane.

The ordinary clinical lobar pneumonia, due to the pneumococcus, prevailed until about March 20; then, abruptly the streptococcus type predominated, with a very great increase in the incidence of the disease. From September 20 until March 20, which marks the period of ordinary lobar pneumonia, 276 cases were treated; from March 20 to May 10, 400 patients with pneumonia entered the hospital.

A very mild type of pneumonia prevailed during the early autumn, with a mortality in the first hundred of 7 per cent. The onset was usually severe and evidence of intense toxemia prevailed, but the course of the disease was short. In the first eighty-eight cases terminating by crisis, the duration in seven was 2 days; eleven, 3 days; thirteen, 4 days; thirteen, 5 days; eighteen, 6 days; nine, 7 days; ten, 8 days; two, 9 days, and five, 10 days or more. In this series of 276 cases, empyema was present in thirty-one, or 11.2 per cent. Even in these early cases, however, there was a marked tendency to multiple pus foci and the mortality from empyema was high. In those of this series where the type of pneumococcus was determined, Type I was found in 22.8 per cent.; Type II, typical and atypical combined, 46.8 per cent.; Type III, 7.6 per cent., and Type IV, 22.8 per cent.

The colored troops were much more susceptible than the white, 116 being colored and 159 white, and one American Indian. The colored troops did not enter camp until we had received forty white soldiers with pneumonia. Allowing for this, it is seen that there was about an equal number of the two races, although the colored troops made up only about one sixth of the total strength of the camp. The mortality among the colored troops was also somewhat higher—12.9 per cent., with 9 per cent. among the white troops, the total average morality being 11.2 per cent. Empyema occurred in 8.6 per cent. of the cases of pneumonia in the colored troops; in the white troops, 13 per cent. It was much more fatal among the former, 70 per cent. dying as compared to 57 per cent. among the latter. This is in striking contrast to the results observed in the streptococcus empyemas. The mortality in the thirty-one empyemas was 61.3 per cent., which is accounted for by the marked tendency to multilocular pus collections. This feature, so characteristic of the streptococcus empyemas, also prevailed in our early cases of pneumococcus pneumonia, although in the majority of these, streptococci were found in the pleural exudate, either alone or in conjunction with the pneumococcus.

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* Read before the Section on Practice of Medicine at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

The epidemic of streptococcus pneumonia appeared suddenly between March 18 and 20, continued with great severity for six weeks, then gradually became less intense, still continuing, however, May 10 at the rate of four or five cases daily. The virulence of the epidemic, however, became less marked after the first three weeks, although the number of new cases remained high.

It was immediately recognized by the ward surgeons that we were dealing with a different type of pneumonia. Evidence of severe intoxication appeared very early; empyema became very frequent and developed extremely early, two patients entering the hospital with pleural exudate who had been drilling the day previous. While the involvement in the lung maintained a lobar type, clinical evidence of complete consolidation was far from constant. Dulness with suppressed breathing and subcrepitant râles, but inconstant or localized bronchial breathing were the usual findings; rusty sputum, provided there was expectoration, was the rule. Early roentgenoscopy showed that the infiltration was lobar in character. The development of an exudate was often exceedingly difficult to determine by the ordinary physical findings, aided by the roentgen ray, and it became necessary to resort to frequent exploratory aspirations. These were often repeated several times before the fluid could be located. Early this exudate was only moderately turbid, contained numerous polynuclear leukocytes and showed on smear short chain streptococci. Gradually the fluid became definitely purulent.

The bacteriologic findings in ninety-five of these exudates showed pure streptococci in eighty-eight, all being hemolytic. Pneumococci combined with streptococci were found in three: two of Type II and one of Type I. Pneumococci without streptococci, but often combined with other bacteria, were found in four cases: one of Type I, two of Type II and one of Type IV.

At the outbreak of the epidemic, a special effort was made in taking the history to determine predisposing causes or evidence of any infection antedating the onset. It might be stated that the month of March was exceedingly dry, and clouds of dust hung over the cantonment. Either as a result of this, or independently, a mild tracheitis was very prevalent. Wherever a large group of soldiers congregated, the prevalence of coughing was very noticeable. It was, therefore, not surprising that many patients gave a preliminary history of mild sore throat, often of several days' duration, but more frequently a preliminary history of cough. History of great fatigue, or chilling was noted occasionally, but not with significant frequency. Not infrequently from apparently good health, the onset was ushered in with a chill. While our patients came from all parts of the camp, there were certain organizations where the disease was more prevalent. Of the first fifteen cases, ten came from a colored regiment, which had been in Camp several months, and throughout the course of the epidemic this organization furnished the highest percentage. No one company in any organization furnished an unusual number of cases. The depot brigade, which was made up largely of new arrivals, suffered the least. At the time the epidemic began, the camp was not crowded and the number in each barrack was much less than it had been in the winter. The ventilation in the barracks, on account of the mild weather during March, was probably much better than it had been in the two preceding months.

As an aid to early diagnosis and exact localization of the involvement, the roentgen ray was found to be of considerable value. It was of much less assistance in differentiating between consolidated lung and pleural exudate, although when repeated frequently and compared with the ward findings, it proved to be of great value. In the beginning, an order was issued to all ward surgeons in the Medical Service that every pneumonia suspect should be roentgenographed within twenty-four hours, and in addition, every case diagnosed as bronchitis, where the temperature remained above 101, for twenty-four hours. By this means all pneumonias were detected early, and it furthermore stimulated the ward surgeon in that a more careful physical examination be made, as he knew that his findings would be checked up with the roentgen ray. Furthermore the roentgenoscopy was repeated every fifth day until the patient's temperature had been normal for one week. This was of considerable assistance in detecting empyema. The roentgen ray also gave us accurate data regarding the incidence of the lobe first involved. In 596 cases of both types, the first involvement occurred in the lower left lobe in 253; lower right, 252; upper right, 45; upper left, 23; middle, 12; entire right lung, 5; entire left lung, 1, and in both lungs, 5.

Complication with pus formation was very frequent. While empyema developed in 11 per cent. of the pneumonias previous to the epidemic, it appeared in 34.8 per cent. of the cases during the epidemic. One case of suppurative peritonitis was found in the 276 cases of pneumonia preceding the epidemic and five cases in the first 364 streptococcus cases. In three of these it was associated with suppurative pericarditis and in all cases with empyema. It was interesting that four of these cases developed within a few days of each other. Suppurative pericarditis was found in fifteen of the 142 cases of empyema, or 10.5 per cent. It was only found in association with empyema, and in only one case was it found in a colored soldier. Rectus abscess, which was more or less frequent in similar epidemics in other camps was not present in the first 364 cases, but one abscess developed in a more recent case. The colored soldiers developed empyemas in 20 per cent. of the pneumonias and the white soldiers in 45 per cent. The empyema mortality was 44 per cent. in the colored and 64.8 per cent. in the white soldiers. This lessened tendency to empyema and suppurative pericarditis in the colored troops was striking. The deaths from uncomplicated streptococcus pneumonia in the colored was 19.97 per cent., and 10.7 per cent. in the white. These figures show that the colored soldiers show a much higher mortality from uncomplicated pneumonia than the white soldiers, but a lower mortality from empyema.

The mortality in 142 streptococcus empyemas was 60.4 per cent. This is considerably higher than the average in other camps. There is no apparent explanation of this unusually high mortality, as the method of treatment was similar to that carried out elsewhere. It is true that in only a moderate percentage of these cases, death was due not to empyema itself, but rather to severe infection, the majority of the patients dying with merely a turbid fluid, the time being too short for it to become thick and creamy. The mortality in 346 streptococcus pneumonias was 32.5 per cent. as compared with a mortality of 11 per cent. in the previous pneumococcus type.

Arthritis as a complication appeared in only six cases. Suppurative otitis media was quite common. Erysipelas developed as a complication in seven cases. These were facial except in one case, where it developed at the site of the exploratory puncture. It was also interesting that four out of six cases of scarlet fever in nurses during this period occurred in nurses working in the pneumonia wards, although all wore masks and gowns, and were instructed regarding the disinfection of the hands.

The treatment of the pneumonias consisted in the ordinary hygienic measures. All patients were placed in special pneumonia wards, each bed separated by a sheet suspended from a wire and 1,000 cubic feet of air space to a patient. No attempt was made to reduce temperature by bathing. Every patient received morphin for pain or to control restlessness. Tincture of digitalis in 1 c.c. doses was given every three hours, day and night, from the time the patient entered the hospital until the crisis, unless evidence of its toxic effects developed, and this appeared in only a very few cases. It was decided during the autumn that we would use this cantonment as a control and not use the serum. It is interesting to note that in the 276 cases of pneumococcus pneumonia, only two patients died with Type I infection. The largest number of fatalities occurred in the Type II group.

In the early days of the streptococcus pneumonia, where aspiration showed a turbid fluid containing streptococci, immediate drainage was resorted to. As the mortality was extremely high, this was discontinued and the fluid became definitely purulent in from seven to ten days. The patients were then operated on by rib resection and drainage. The operated empyemas were irrigated and dressed by the surgical service, but held on the medical service in a special ward, the medical department being on the lookout for new accumulations of pus or other complications. When early rib resection was performed, the patients frequently returned from the operating room in a state of shock, from which they did not recover. Sixty-five cases were treated by immediate operation, with a mortality of 53.9 per cent.; fifty-five were aspirated, the operation being postponed as has been stated; 32.7 per cent. of these terminated fatally; four recovered by aspiration alone. The remaining number of the 142 empyemas, namely, twenty-two, reached an early fatal termination so rapidly that either the pus was not detected until necropsy or the patient's condition was such that aspiration was considered unadvisable.

It would appear that the streptococcus empyemas might be divided into three groups: (1) those who die early, no matter what form of treatment is instituted, from acute toxemia; (2) those with multiple pus foci, difficult to detect, because of the inability to locate and drain all foci; these all die, and (3) those who usually recover, either from early operation or aspiration followed by operation; here are included those with moderate toxemia and those with localized pus accessible to drainage.

PATHOLOGY OF THE EPIDEMIC STREPTOCOCCAL BRONCHOPNEUMONIA IN THE ARMY CAMPS *

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In a previous paper[1] a peculiar form of bronchopneumonia, caused by a hemolytic streptococcus and prevalent in some of the Army camps, was described. This was based on observations made during February and March at Fort Sam Houston, Texas. Since that time I have been able to study during May a quite similar epidemic at Camp Dodge, Iowa,[2] where, however, the surrounding conditions, climate, housing of troops, and organization and construction of the base hospital were very different. Another striking difference lay in the great prevalence of measles in the Texas camp, whereas at Camp Dodge measles has not been very common. In the Texas camp we were greatly impressed with the importance of measles as a disease predisposing to secondary invasion of the streptococcus, although we realized the possibility that other diseases, such as scarlet fever or lobar pneumonia, might act as predisposing causes, and that the streptococcus might sometimes be the primary invader.

At Camp Dodge there were only sixty or seventy cases of measles in the wards, and the pneumonia appears to have arisen quite independently of it. In this camp, therefore, it was the prevailing opinion of the medical officers that measles played little part in the production of the epidemic. Of eighty cases studied clinically and bacteriologically by us at this camp, there were only fourteen in which there had been a recent attack of measles. Even this considerable percentage was the result of a small epidemic of postmeasles pneumonia which appeared during our stay. It was very severe among these men and several of them died, so that among the seventeen cases of interstitial bronchopneumonia that we studied at necropsy there were nine following measles. During the earlier part of the epidemic, however, there were, I am told, very few of such cases. In the Texas epidemic we found among twenty cases of bronchopneumonia at necropsy fifteen with a recent history of measles.

We received the general impression that in a community in which measles was very prevalent the hemolytic streptococcus was able to gain a foothold and to

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* Read before the Section on Practice of Medicine at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

[1] Cole, Rufus, and MacCallum, W. G.: Pneumonia at a Base Hospital, The Journal A. M. A., April 20, 1918, p. 1146.

[2] This study was made with the assistance of Capt. A. W. Sellards and Lieuts. H. M. Thomas, Jr., and A. B. Lyons.

produce an extremely severe form of bronchopneumonia, but that it is quite possible for this organism to cause an epidemic of bronchopneumonia with a very high mortality without the intervention of measles or other obvious predisposing disease.

In Texas we found measles patients entering the hospital with a relatively small percentage of throats infected with the hemolytic streptococcus, but acquiring this infection rapidly when kept together in the wards, and in many instances developing the severe bronchopneumonia. We suggested the advisability of isolating such carriers of the streptococcus as a means of protecting the more numerous measles patients that entered with uninfected throats, and this measure has since been carried out with success at Camp Zachary Taylor.

In Camp Dodge the conditions were different. There were no great numbers of measles patients, and those that developed a streptococcus infection were carefully isolated. Measures of isolation were carried out with great care throughout the well constructed hospital, and we felt that the transfer of infection from patient to patient within the hospital played no important part. Bedding, linen and utensils were carefully sterilized with steam, and physicians, nurses and orderlies were rigidly compelled to wear caps, gowns and masks. The patients, too, wore masks when not in isolation. The great spread of infection appears to have occurred in the camp itself. During the winter there was a moderate amount of lobar pneumonia caused by various types of pneumococcus; but suddenly, March 20, this mild pneumonia with exceptionally low mortality was replaced by a severe disease which began in the Three Hundred and Sixty-Sixth Infantry, an organization of Alabama negroes, and spread rapidly to other parts of the camp. Since the other organizations in this camp have been moved about a great deal, it is difficult to trace the distribution of the disease accurately; but during the remainder of March, April and May, the epidemic assumed great proportions. The measles patients were removed from the hospital proper to certain nearby barracks, and it was only in May that about ten or twelve cases of bronchopneumonia developed among them.

The conditions with regard to the housing of troops, the cold winter climate, the influences of exposure and fatigue are discussed by others. They appear to be about the same as in other camps where no such epidemic has occurred. On the other hand, cultural study of the throats of large groups of men from several of the organizations in this camp made by the resident staff and in part by us has shown a very considerable proportion of carriers of the streptococcus not only in barracks from which cases of pneumonia had come but even in fresh recruits. It is true that the number of carriers is greatest in those barracks which had a high sick rate, but none of the organizations seems to have been quite free.

It is also true that one must accept with some reserve the results of cultures made in this wholesale fashion from throats, since it is not an easy matter to recognize with certainty pathogenic hemolytic streptococci from such a source. Nevertheless, these cultures have a great comparative value.

ETIOLOGY

Throughout this epidemic, pneumococcus infections resulting in lobar pneumonia continued to appear. In these cases, as is usual, the pneumococcus could be isolated from the sputum, and in many instances from the circulating blood.

The prevailing infection, however, was with the hemolytic streptococcus, which frequently appeared in connection with the pneumococcus and often overgrew it completely. This organism could be cultivated from the throat, from the sputum or from the pleural exudate, but not from the circulating blood. Indeed, in those cases in which it occurred in combination with the pneumococcus, cultures from the blood might show the pneumococcus but never the streptococcus. About 100 blood cultures were made by Captain Sellards and Lieutenant Tormey, but in no case was the hemolytic streptococcus recovered.

Cultures from the sputum made by Lieutenant Thomas in thirty-nine cases showed various organisms and combinations of organisms, as may be seen from the accompanying table.

It is remarkable that the influenza bacillus was found very frequently in combination with other organisms, although never as the sole cause of the disease; nor, indeed, except in one instance in which it occurred in the pleural exudate, was it found in the internal organs. The same result was obtained in Texas, although there this bacillus was isolated several times from the lungs. The part actually played by this organism in the production or intensification of the disease is not clear.

The pneumococcus occurs in many cases in the sputum, and in such cases lobar pneumonia was usually found. It is noteworthy, however, that in the series of twenty cases studied at necropsy the pneumococcus was found only three times in the organs, while the hemolytic streptococcus occurred nineteen times.

The blood cultures were made in the usual way by adding from 5 to 20 c.c. of blood to from 50 to 200 c.c. of broth. They were of especial interest since we were told by bacteriologists from other camps that they had been able to isolate the streptococcus from the blood in a high percentage of the cases even in their earlier stages. But neither in Texas nor at Camp Dodge have we been able to recover them except in cultures made a few hours before death. It is also the impression among clinicians who have to do with this disease that it must be a septicemia if one may judge from the evidences of intoxication or from the occurrence of arthritis and abscesses in distant parts of the body. We have unfortunately seen no cases of arthritis, and rarely any abscesses or other lesions that might not be due to direct extension of the infection. It seems possible, however, that just as in the case of chronic phthisis, in which scattered minute tubercles in distant organs seem to indicate an occasional transportation of tubercle bacilli in contrast with the generalized miliary tuberculosis, which is more closely dependent on a real if temporary septicemia, so here there may be a rare or occasional transportation of a few streptococci.

Thirty-six cultures were made by Captain Sellards, and of these, two showed the pneumococcus Type II, one the pneumococcus Type IV, while three developed a few colonies of a nonhemolytic streptococcus. All the other cultures were sterile, although taken by choice from the sickest patients who were found to be suffering from a streptococcal infection of the lungs. It is noteworthy that in the two cases in which the pneumococcus Type II was isolated from the blood, necropsy revealed the existence not only of a lobar pneumonia but also of an interstitial bronchopneumonia caused by the hemolytic streptococcus, although the latter could not be found in the blood.

Cultures from the pleural fluid obtained by aspiration during life were made on blood agar plates, and the fluid itself was examined in smears. In almost all cases a single organism was found in pure culture, but in one case the influenza bacillus occurred in combination with the streptococcus. In only two was the pneumococcus found, while the hemolytic streptococcus was present in pure culture in twenty-one. The pleural fluid gives the most trustworthy evidence as to the nature of the infective agent concerned in the pneumonia, although it is true that the streptococcus, if present, may well have overgrown a pneumococcus which may still appear in the blood.

Cultures made at necropsy, except in the few fatal cases of uncomplicated lobar pneumonia caused by the pneumococcus, showed the hemolytic streptococcus in every situation throughout the respiratory tract and pleura. The heart's blood regularly contained this organism, and it was found in such accessory areas of inflammation as occurred in the mediastinum, and even in the peritoneal exudate in several cases in which there was peritonitis.

SPUTUM EXAMINATIONS*

Organisms	Number
Pneumococcus Type I	2
Pneumococcus Type II	5
Pneumococcus Type III	2
Pneumococcus Type IV	3
Streptococcus hemolyticus	1
Pneumococcus and Streptococcus hemolyticus	2
Pneumococcus and influenza bacillus	6
Pneumococcus, Streptococcus hemolyticus and influenza bacillus.	1
Streptococcus hemolyticus and influenza bacillus	5
Staphylococcus and influenza bacillus	3
Streptococcus hemolyticus and staphylococcus	3
Streptococcus hemolyticus and nonhemolytic streptococcus	3
Nonhemolytic streptococcus and influenza bacillus	2
Pneumococcus, staphylococcus and influenza bacillus	1
Total	39

* Pneumococcus, with or without other organisms, appeared in 22 cases. Streptococcus hemolyticus, with or without other organisms, appeared in 12 cases. Influenza bacillus, combined with other organisms, appeared in 18 cases. Staphylococcus aureus, combined with other organisms, appeared in 7 cases. Nonhemolytic streptococcus, with or without other organisms, appeared in 5 cases.

PATHOLOGIC ANATOMY

There is little to add to the description of the anatomic changes in the streptococcal bronchopneumonia that was given in the former paper.

In this epidemic the characteristic lesions designated there as interstitial bronchopneumonia appeared in typical form, especially in those cases which followed measles. Such cases appeared to be much more rapidly fatal than those in which the streptococcus was the primary invader. The patients were extremely sick men, and it was observed, as noted in the Texas epidemic, that they quickly lost the power of producing any voice sounds and spoke only in a hoarse whisper. Many of them died before the development of empyema. At necropsy there was found the most intense congestion of the whole respiratory tract. The lungs could be distended with air, even though they were found to be extensively collapsed. Nodular consolidation could be felt throughout, but especially in the posterior parts of the lungs. On section, the bronchi contained a gray purulent exudate. They were markedly dilated toward the periphery; their mucosa was deep purplish gray. All showed thickening of the walls, and the terminal bronchioles were especially thickened, so that with the adjacent alveoli they projected in cross-section in the form of small, firm nodules from the center of which a droplet of thick pus could be expressed. Such dense peribronchial nodules were nearly always surrounded by hemorrhage. Even in these very fresh cases there were occasional small areas of more homogeneous consolidation. Microscopically they showed the features already described in detail, which consist essentially in the filling up of the lumen with an inflammatory exudate of leukocytes and blood in which bacteria are numerous, and in the infiltration and thickening of the wall of the bronchioles with mononuclear wandering cells. Great hyperemia and edema of the bronchial wall is soon accompanied by a less evident new formation of connective tissue cells. The adjacent alveoli, so far as they are not filled with red blood corpuscles, are packed with mononuclear cells and dense fibrin. The alveolar walls are infiltrated with mononuclear cells, and are widened.

In this epidemic, however, certain new features should be noted: The number of streptococci seems to be greater than we have seen in other cases. The bronchioles are fairly lined with clumps and tangled masses of streptococci in long and short chains. The mucosa, and even a part of the connective tissue of the bronchial wall, is found to be necrotic and adherent like a false membrane lining the whole of the terminal portion.

In general, the organisms do not penetrate deeply into the tissues, but there are many cases in which in addition to the filling of the adjacent alveoli with dense fibrin, desquamated epithelium and mononuclear cells, there appear areas in which all the alveoli are filled with polymorphonuclear leukocytes loaded with streptococci in short chains. Such areas of lobular pneumonia were described in the former paper and the great numbers of organisms found in the alveoli were mentioned; but this condition seems to have occurred far more frequently in the epidemic at Camp Dodge. Indeed, there were cases in which larger confluent areas of pneumonia resembling closely the lobar pneumonia produced by the pneumococcus occurred in association with typical peribronchial and interstitial changes. From these nothing but the hemolytic streptococcus was isolated. It is, of course, difficult to distinguish between the pneumococcus and streptococcus in stained sections; but one may find the streptococcus in long, flexible chains in these areas, especially in the marginal alveoli, where the exudate is loose or where it consists only of fluid. In such areas of diffuse pneumonia, one finds sometimes the most beautiful hyaline fibrinous thrombi filling all the capillaries of the alveolar walls.

It seems, therefore, that while the very characteristic interstitial bronchopneumonia resulting in the production of firm peribronchial nodules occurs as the most typical result of the invasion of the streptococcus, the rapid growth of the virulent organism may frequently produce even in these cases a more widespread and homogeneous consolidation owing to the filling of the alveoli with a leukocytic exudate loaded with organisms. This may even assume lobar proportions.

Study of the larynx was carried out in all these cases, and in several instances extraordinary changes were found.

There was, of course, intense reddening in all; but in seven cases there was an advanced ulcerative process affecting especially the vocal cords, but also the margins of the epiglottis, the aryteno-epiglottic folds, the walls of the pyriform sinuses, and the lateral walls of the interior of the larynx. In one case there was a deep phlegmonous infiltration of the tissues about the epiglottis which in section revealed great numbers of streptococci in long chains. The ulceration of the vocal cords causes a deep excavation along their whole length, so that the inability to produce voice sounds is easily understood. Of the seven cases in the list, two were said to have followed German measles, four were definitely associated with measles, while one gave no history of previous disease. All, however, were rapidly developed and severe cases.

The largest group of cases comprised those in which empyema developed. This included four of the post-measles cases in which the patients survived long enough for this complication to appear. In these the lungs were even more intensely collapsed, but showed in general the same peribronchial and interstitial changes, often with the addition of patches of lobular pneumonia. The involvement of the interlobular septums and the infection and thrombosis of the lymphatics have been described before.

So, too, has the organization of the exudate in the alveoli and bronchi and on the pleural surface. No new features have been observed in the empyema itself. Beginning with an abundant thin, turbid, brownish fluid, it soon assumes a purulent character, and the pleural layers become thickened by the formation of vascular granulation tissue covered with a thick layer of fibrin. Particularly important from a surgical point of view are the adhesions, which occur in such a way as to imprison part of the exudate. The anterior margin of the lung may adhere to the pericardial sac and thus enclose a quantity of pus between the lung and the pericardium, or two lobes may imprison a pocket between this.

We have encountered many abscesses in the substance of the lung itself. These may reach a great size, and are often multiple. In many instances they communicate widely with large bronchi and thus empty themselves, appearing as ragged cavities into which hang shreddy masses of necrotic tissue. Secondary infection may occur in such open cavities.

Combinations of lobar pneumonia caused by the pneumococcus, and interstitial bronchopneumonia caused by the streptococcus, were again observed in the same lung, and cultures of these organisms were isolated from the corresponding portions of the lung by Lieutenant Lyons.

These are the principal changes which affect the respiratory tract itself. There are few complications which deserve attention.

COMPLICATIONS

Pericarditis is not especially common, but there were three cases in the series with fibrinopurulent exudate and great thickening of the pericardial membranes. In one of these the pericardial sac contained more than a liter of exudate.

Peritonitis of an acute fibrinopurulent character occurred twice. It is not easy to explain its origin, but it seems probable that it is due to extension through the diaphragm.

In one case there was an extensive abscess among the muscles of the neck, reaching from the apex of the pleura up to the mastoid region and downward between the scapula and the vertebral column. This, too, seems to have been due to an extension of the infection, possibly from the empyema or from the infected tissue of the mediastinum.

The abdominal organs presented no lesions that could be ascribed to the streptococcus.

There was found, however, a hyaline degeneration and necrosis of the muscle fibers of the rectus abdominis in one case, without any alteration in the gross appearance of the muscle. This seems quite similar to the hyaline change that occurs in typhoid fever and is known as Zenker's degeneration. In two other cases the same condition was found, but was accompanied by symmetrical rupture of the whole muscle with hemorrhage.

The rectus muscles were torn through on both sides in their lower third, and a considerable hematoma had formed between the retracted ends. In one of these cases the streptococcus was found in the extravasated blood, but in the other there were no organisms. It seems probable that this infection occurred secondarily, just as the abscesses which appear symmetrically placed in the rectus muscle in pneumococcus infections are probably due to a secondary localization of the pneumococcus in such degenerated muscle fibers.

Otitis media occurred in one or two cases, but there was no great prevalence of mastoid suppuration.

SUMMARY

In general, it may be concluded that the *Streptococcus hemolyticus,* with or without predisposing diseases of various sorts, such as measles, gives rise to extensive and fatal epidemics of a peculiar bronchopneumonia which in most cases affects the framework of the lung and the bronchial walls in such a way as to suggest the name interstitial bronchopneumonia. This seems especially severe after measles. It is often associated with a diffuse or patchy lobular pneumonia in which the streptococcus appears finely scattered in the alveolar exudate. Such areas may be confluent and resemble a lobar pneumonia.

Ulcerative laryngitis, which may cause deep destruction of the vocal cords and epiglottis, occurs in the acuter cases and especially in those following measles.

Empyema is an extremely frequent complication, as has been generally recognized; but other complications are not very prominent. Pericarditis, peritonitis, otitis media and occasional abscesses may be mentioned. Hyaline degeneration of the muscle fibers may occur in the rectus abdominis muscles, sometimes leading to their rupture.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. SMALL, MILLER AND LUSK, AND MAC CALLUM

DR. WILLIAM H. WELCH, Baltimore: Let me, in the first place, make one comment: How comes it that there is another discussion on the prevention of pneumonia in another section? The Section on Preventive Medicine is discussing an important paper by Dr. Cole. I call attention to that, as I think it is a mismanagement to have two discussions on pneumonia going on simultaneously in two sections.

How new are the problems which we are discussing here today is evident when we recall that no such discussion could have taken place a year ago. It is true that when we began to prepare for the medical care of the troops in our camps we foresaw that pneumonia would play an important part, as it always has in large camps in war, especially at certain seasons, and with the view of making available all our newer knowledge of this disease Dr. Cole prepared his admirable monograph on pneumonia, which has been widely distributed and has been most helpful. This monograph treats, however, of the familiar lobar pneumonia due to the pneumococcus, whereas the more important and fatal form of the disease has been streptococcus pneumonia with its complications, which is a quite different disease, concerning which we had relatively little information. It is this latter affection which has been the most serious problem at our camps, and which has been the subject of the most intensive study.

Since visiting Camp Wheeler with General Gorgas last November, when pneumonia was becoming unusually prevalent in the camp, I have had the opportunity of seeing the conditions in many other camps where the disease has existed and have become impressed with the necessity of a combined attack on this problem on the part of the clinician, the bacteriologist, the pathologist and the epidemiologist. It is quite impossible to arrive at any clear understanding of these streptococcus infections, of which pneumonia and empyema are the most important manifestations, by clinical studies alone, or even by clinical and bacteriologic combined. Careful postmortem examinations are absolutely essential. Such examinations should be made in all cases of death in our camps, unless there is some exceptional reason for not making them, and it is most unfortunate that obstacles should be placed in the way of the freest use of this essential aid to advancing medical knowledge.

As I have been attending a discussion on the prevention of pneumonia in another section, going on simultaneously with that in this section, I have unfortunately missed hearing the papers read here, but I should like to indicate some of the problems on which we need more light regarding these streptococcus infections. We need more information regarding *Streptococcus hemolyticus,* the organism chiefly concerned, notwithstanding all the study devoted to it, and it is gratifying to know that some of our best bacteriologists are concentrating their attention on this question. We are not clear as to the precise rôle played by pre-existent infections, especially measles, bronchitis, sore throat and pneumococcus infections, in favoring the development of streptococcal diseases. The clinical and anatomic characters of streptococcal pneumonias and pleurisies need further study, as does the relation of the empyemas to the pulmonary affection. The mode of conveyance of these diseases, and especially the rôle of carriers, is not settled. Especially important are epidemiologic studies intended to elucidate the starting point and the agencies concerned in spreading these streptococcal infections in the camp. the hospital and the civil community. Every effort should be made to furnish, if possible, a sound experimental basis for preventive inoculation and specific therapy, and, failing this, the best methods of prevention and treatment. We already know that much can be accomplished by proper administrative control, segregation and the use of gauze masks. It is important that detention and observation camps for incoming and outgoing troops be constructed and organized and that the receiving wards of the hospital, the observation wards and those for pneumonia and other infectious patients be arranged and administered so as to guard against conveyance of the agents of infection in the most efficient manner possible.

Dr. Lawrence Litchfield, Pittsburgh: In reply to Colonel Welch's criticism on having two discussions of pneumonia going on at the same time, I will say that the Section on Preventive Medicine considered pneumonia among the other preventable diseases, whereas the Section on Medicine has devoted itself to the study of pneumonia as it has occurred.

Col. F. F. Russell, Washington, D. C.: I have not been able to hear the papers, and what I will have to say will be unconnected with what has gone before. Examining our disease incidence charts, we find that a large proportion of all deaths have been due to pneumonia. Pneumonia is the principal cause of death. In Camps Pike, Beauregard and Wheeler the death rate was 24 or over. In Camps Devens, Upton, Dix, Meade, Custer, Grant, Sherman, Wadsworth, Hancock, Logan and Lewis the death rate was under 8. If we place these camps in the localities from which the men came, we find that they fall into a natural group. For instance, the three black camps would be placed in Georgia, Florida, Mississippi, Louisiana and Arkansas. The men coming from those regions furnished the greatest number of deaths. The lowest death rate is found in the camps that lie in the northeastern section of the United States. The death rate is low where the rural population is small. In New England only 17 per cent. of the population is rural, and the death rate is low. On the other hand, where 78 per cent. of the men come from the country districts, the death rate is higher. Pneumonia did not occur extensively among the troops coming from the thickly settled parts of the country, but only among the troops coming from rural regions.

Another point to consider is the number of days in hospital. When the men were admitted to sick report very freely the death rate was low. The more men there were on sick report the lower the death rate. The same relation exists between city and country population and much and little sickness. At Camp Upton, which was made up of men from New York City, the death rate was practically the same as in the city. Camp Wadsworth, which was filled with New York City troops, had an even better rate. Therefore, men from New York City, whether they remained at home or went to camp, did not have any great difference in death rate. Whatever the difference was was in favor of the camp. The same is true of Camp Meade, whose men came from Pittsburgh neighborhood; the men were better off in camp than they would have been had they stayed at home. The same thing is true of the men from Chicago. When we get down South the conditions are reversed. Here is the death rate for New Orleans, which is higher than that in New York. When we compare the troops from New Orleans we find the conditions also reversed. In Louisiana the population is largely rural and nonimmune to the diseases of childhood, and when exposed to these diseases the troops have a high morbidity and mortality. That is the principal thing that has come out from our study of epidemic diseases from this point of view—that is, that the population of the cities and the population of the thickly populated districts seem to be immune to measles and to a certain extent to the other infectious diseases. Persons from the country districts, on the other hand, are not immune to these diseases and have a higher mortality when collected together in camps. If we look back to the Civil War we find that the same conditions existed. That is, northern troops in the southern locations were much more healthy than the southern troops, no matter where they were located.

Dr. Rufus Cole, New York: I regret very much that I had to be present this morning at the meeting of another section, and so have been unable to hear the papers presented here. I imagine that all phases of the pneumonia problem have been considered and fear that anything I may say will be only repetition. However, I should like to emphasize that our Army experience has shown that there are two essentially different kinds of pneumonia, two different diseases; one of them is an endemic disease, and the other is an epidemic disease. The former is due to pneumococci, the latter to streptococci. Streptococcal infections have a tendency to appear in epidemic form and are usually secondary. This, as Dr. Theobald Smith has pointed out, is especially true of streptococcus infections in animals. Such infections are almost always secondary, occur in epidemics and fortunately tend to be self-limited. A possible explanation for this is that streptococci are extremely variable in virulence. On passage through animals the virulence rises quickly, but just as quickly disappears when the bacteria are grown on artificial mediums. What has apparently happened in the Army is that streptococci, infecting measles patients in whom the soil is especially suitable, have grown rapidly in virulence, so that they have been able to infest persons suffering from other mild respiratory diseases, or even normal persons. If this is true, obviously the time to stop an epidemic is at the very onset. To do this requires early diagnosis and isolation of the first cases arising. This would be possible provided laboratory facilities were available, and provided the cases did not occur with too great rapidity. It is not possible, indeed it is probably not advisable, to stop measles in the Army altogether; but it does seem advisable that an attempt be made to distribute the occurrence of measles over longer periods of time. This could possibly be done by more strict isolation of contacts, and especially by better organization of detention camps.

Much can be done to prevent cross-infections in the hospital, especially to prevent the occurrence of pulmonary infections in measles cases, by more rigid hospital isolation. The Army hospitals were originally organized as general hospitals, with only moderate provision for the reception and care of patients suffering from communicable diseases. Experience has shown, however, that Army hospitals should consist of two distinct divisions, one for the treatment of noncommunicable diseases, and one for the care of patients suffering from communicable diseases. Separate receiving rooms should be provided for the two types of cases, with a sufficient number of observation wards for complete isolation of patients, until positive diagnoses can be made, and until it can be determined whether or not the patients are carriers of hemolytic streptococci. In certain of the camps such a plan has already been put into operation. But it seems that more emphasis should be laid on the separate and proper organization of the infectious disease service in the Army hospitals.

Dr. Walter P. Bliss, New York: The papers have all brought out the importance of the pneumonia problem at our base hospitals in the Army camps and the similarity in these various camps, no matter where located. Our experience at Fort Riley has been the same as the experience at the other camps. The striking things have been the number of empyemas, the high mortality of this complication, the great frequency of the streptococcus as the cause, and the tendency of these empyemas to locate in pockets.

A few points which I might mention may be of practical interest. We have had to revise our criteria for the diagnosis of empyema, largely because of this tendency of the empyemas to pocket. We cannot depend on the ordinary physical signs of fluid to make the diagnosis. In an extensive series of blood counts we found that cases of pneumonia with complicating emypema showed practically the same blood count as those that were uncomplicated. In other words, we could not depend on leukocyte counts in showing the presence of this complication. Furthermore, as Major Miller brought out, the roentgen ray was of little value in showing small accumulations of fluid. If temperature, pulse or respiration remain elevated after six days we should begin to look very vigorously for fluid. We have frequently obtained pus from patients with absolutely normal temperatures. We have obtained pus from patients whose respirations and pulse were not elevated, so that if any one of these factors were elevated, it was our practice to make particularly careful examination for fluid and not to spare the aspirating needle. We had a high mortality in empyema when the operation was performed early. We attributed it usually to a spread of the empyema to the other side following operation. It would not always occur immediately after operation, but sometimes several days or a week after. Consequently, we adopted the method of aspirating repeatedly and operating ten or fifteen days after the pus was first diagnosed. We found it of particular value after operation to irrigate the chest cavity with Dakin's solution daily. It deodorized the pus and caused apparently a diminution in the amount of discharge.

Early in our experience we did both costatectomy and simple thoracotomy. We feel, however, that costatectomy is to be preferred. We have paid particular attention in treatment to digitalization. We have used a tincture of digitalis which was standardized for us by Dr. Cary Eggleston of Cornell after the cat method of Hatcher and Brody. Our tinctures standardized to a dose of 0.17 c.c. per pound of body weight of patient. The total dosage was given during the first thirty hours as a rule (that is, a man weighing 120 pounds would receive about 20 c.c.) in order to avert later the possibility of cardiac failure. In emergencies we used digipuratum intravenously, but later could not obtain it, and now we use digitalone intravenously or Nativelle's crystalline digitalin by mouth. Serious cases were treated in open air wards.

In regard to serum: We have had but few cases of Type I pneumonia, but we have had very good results with the Type I antipneumococcus serum. There were but five deaths, of which two were complicated by meningitis and one by empyema; so, excluding these, our mortality in Type I was low. A series of cases was treated with Dr. Kyes' chicken serum. We thought there was reduced toxicity in these cases, but the number of cases was so small we do not feel justified in drawing conclusions at this time.

Dr. George F. Dick, Chicago: I had the opportunity to observe the pathology of these streptococcus pneumonias in both Camp Pike and Camp Dodge, and I was impressed with the prevalence of one type I saw at Camp Pike which I did not see at Camp Dodge. It was a streptococcus pneumonia. The sputum cultures showed no pneumococci, only a streptococcus; the blood cultures were positive for streptococci in the early stages. A bacteriologic examination of the lung tissue itself showed streptococci. Another bacteriologic finding in Camp Pike which I did not see at Camp Dodge was nonhemolytic streptococci. These streptococci produced no effect on the blood whatever and fermented no sugar. They were present in some cases of pneumonia of lobar distribution; that is, they were isolated from the lung tissue.

In studying pneumonia at Camp Dodge I was impressed by the fact that many of these cases gave a history of pneumonia following overexertion. I do not believe that has been brought out enough. Particularly after so-called hikes the men would come down with pneumonia.

With relation to Colonel Russell's figures on death rates and sick lists, the fact was that many cases of streptococcus pneumonia followed bronchitis, and I do not think there has been enough care in isolating these cases of bronchitis, and deciding who ought to go on with training and who ought not. These epidemics vary a great deal in severity, and too much reliance should not be placed on figures. At Camp Dodge I am told that the mortality was high in the early part of the epidemic, no matter what the treatment was, and in the latter part, since I have been there, the ordinary surgical treatment has resulted in a high percentage of recoveries.

Dr. Edward C. Rosenow, Rochester, Minn.: The studies reported in this symposium emphasize as never before the immensity of the streptococcus problem in its larger sense. Through combined intensive clinical, laboratory and pathologic study a definite advance of our knowledge has been made. The great prevalence of disease due to the pneumococcus-streptococcus group of micro-organisms, with its high mortality rate, should lead to the most intensive effort to prevent its recurrence. In the case of pneumococcus infections there is some hope that this may be done. Lister has shown that persons can be protected against pneumonia by prophylactic inoculation of pneumococci for at least nine months.

Major Stone's report on the use of the autolyzed pneumococcus antigen furnishes valuable additional evidence that this form of treatment of lobar pneumonia has definite beneficial effects. This antigen has the power to rapidly stimulate the formation, or cause the mobilization of antibodies and to protect animals against pneumococcus infection. It should be used in the early stages of lobar pneumonia due to pneumococci other than Type I. In Type I pneumococcus pneumonias Cole's serum should take preference, but since two thirds of the pneumonias and most of the deaths are due to other than Type I pneumococci, there is a large field for this form of apparently effective active immunization. Of its harmlessness, at least, there can be no question, and its intensive use is indicated.

Dr. Edward C. G. Franing, Camp Dodge, Des Moines, Iowa: We emerged from the epidemics of pneumonia in the various camps with a new idea of pneumonia. Hereafter pneumonia will be classified bacteriologically and pathologically, and the prognosis will depend greatly on the classification, the streptococcus, especially the hemolytic variety, being most fatal. During the epidemic at Camp Dodge there were many complications, among them sinus infections and arthritides, especially of the knee, but the most frequent was empyema. This was a very serious and relatively fatal complication. The death rate from the empyemas and pneumonias with empyema in the streptococcic class rose and fell with the rise and fall of the epidemic, no matter what method of treatment or operation was used. Also other infections incident to other departments of the hospital rose and fell with the tide of the epidemic. Expectant treatment, repeated aspiration, pleurotomy or costotectomy all have about the same results in the empyemas. The fluids obtained from the empyemas was usually thin, slightly cloudy, brown, yellowish brown, or walnut juice colored, sometimes with flakes of yellowish fibrin, or thicker yellowish fluid. Whenever the latter was found the prognosis seemed better. This sort of fluid was obtained more in the latter part of the epidemic. The mortality in the epidemic empyema complicating pneumonia was very high for two reasons: First, because the patients sent to the operating room were so extremely sick, whether sent early or late, it would seem they would die no matter what method one would pursue; second, the fluid was so often sacculated, and pockets were situated anywhere and everywhere, that unless the whole pleural cavity was explored and adhesions broken up, which was very shocking to the patients and especially under local anesthesia, considerable fluid was left behind, sometimes even a large amount. I should like also to warn against mistaking these early pleurisies and central pneumonias with their somatic abdominal pain and rigidities for appendicitis, the differentiation of which I had to make in many cases this last winter. The character of the pain, and the abdominal rigidity, and blood count, below 22,000 suggesting appendicitis and above pneumonia, and close watching differentiated practically always.

THE PRINCIPLES OF THYROID SURGERY *

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Goiter has received medical and surgical attention, as annals of medicine make record, from time immemorial. Because of its conspicuous location, diseases of the thyroid are far more noticeable than those of other duct-bearing or ductless glands, and yet most of the knowledge concerning it has been acquired within the last fifty years. The chronic character or cyclic recurrence of some diseases of the thyroid is evidenced by the remarkable number of remedies, supposed to be exceedingly effectual, which have been used in their treatment; surgery was employed only as a last resort. Because of the high mortality, most operations were done only when necessitated by obstruction to respiration or circulation. A surgical vicious circle ensued; a high mortality led to late operation, and late operation to a high mortality. The seriousness and frequency of infection was also a great factor in retarding surgery, and progress was not made until the period of antisepsis and asepsis, which developed methods of safety and advanced all surgical knowledge.

The thyroid has a single anlage developing between the portions of the tongue, which very rarely remains in this location. We have seen but three such in 12,000 goiter patients operated on, and in several thousand more unoperated patients with goiter. Midline cysts of the neck are occasionally seen in the hyoid region, incident to defects in development, and are usually connected with a small remnant of the gland behind the hyoid. The pyramidal lobe, occurring in a considerable percentage of persons, is the result of a stringing out of the gland through the attachment of the central portion to the hyoid in its descent.

From the care with which nature has guarded its blood supply, the thyroid, weighing approximately but an ounce, is a gland the secretion of which is of the utmost importance; this we see proved in the vegetative type of animal existence which occurs in cretins who are born without this gland, or those who subsequently lose it—the myxedematous. No other gland in the body has been so well cared for in its circulation by nature as the thyroid, all of the blood in the body passing through it once an hour. With its four regular arteries supplied by various main trunks, and the anomalies leading to greater circulation, nothing should interfere with it. The gland consists of a mass of alveoli or vesicles lined with a single layer of columnar cells. Having no ducts, it has been assumed that its secretion passes through the lymphatics or through the venous system as a hormone. There is no outlet from the interior of the vesicles, and the secretion of colloid accumulates here. As has been previously stated, it is evidently true that these cells deliver a secretion from their bases, and accumulations within the vesicles, should they ever leave them, are passed back through the cells as a filter.

Our surgery of the thyroid was developed for the removal of goiters causing pressure which interfered with respiration or the circulation or for cases of great deformity. These goiters consisted of colloid adenomas, cysts and fibrocystic, malignant or tuberculous tumors. Another variety of disease, exophthalmic goiter, with its various pseudonyms, was recognized as probably being associated with a diseased thyroid, because in it the gland was palpably changed from the normal. The mortality in operations on the gland in this condition was so high that even masters of surgery, such as Kocher, for a long time did not consider it amenable to surgery. Yet, the foundation of our present knowledge of the thyroid is built on a study of the overworking or hyperplastic thyroid, the normal gland and the hypofunctionating gland of myxedema dropping into their respective relationships after these discoveries were made. The thyroid undoubtedly is one of the most important glands in the body, and while we are far from a complete knowledge of its activities, the work of Plummer and Kendall, through investigations into the physiologic action of its secretion, is such as to bring us to the verge of a realization of its fundamental effect on life. Iodin was discovered in 1812 by B. Courtois. Baumann,[1] in 1895, found iodin to be associated with the thyroid secretion, and Kendall,[2] in 1915, separated, as a pure crystalline substance, the organic compound which contains the iodin.

Kendall has been able to separate the compound of the thyroid containing iodin from the balance of the gland. This is accomplished by destroying the proteins of the thyroid by means of boiling with a strong alkali, which does not decompose the iodin-containing compound, and, by suitable treatment, it can be separated as a pure crystalline substance containing 65 per cent. of iodin, its formula being $C_{11}H_{10}O_3NI_3$. The

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* From the Mayo Clinic.

* Read before the Section on Surgery, General and Abdominal, at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

[1] Baumann, E.: Ueber das normale Vorkommen von Jod im Thierkörper, Ztsch. f. physiol. Chem., 1895, **21**, 319.

[2] Kendall, E. C.: The Isolation in Crystalline Form of the Compound Containing Iodin which Occurs in the Thyroid; Its Chemical Nature and Physiologic Activity, The Journal A. M. A., June 19, 1915, p. 2042; Tr. Assn. Am. Phys., 1915, **30**, 420.

compound contains an organic nucleus called indol, as well as oxygen. Wishing to emphasize these two facts and to relate it to its sources, Kendall called the compound thyro-oxy-indol, which has been abbreviated to thyroxin. Its function is involved in the most fundamental processes of life, that is, the production of energy. Kendall's work has furnished the only pure crystalline compound ever separated from the thyroid that possesses the same physiologic activity as the gland itself. This work places the investigation of the thyroid on a clear chemical basis and has made it possible to study quantitatively the action of the thyroid hormone.

Plummer, in the observation of many thousands of cases of goiter, numerous cases of cretins and of myxedematous patients, has shown that the rate at which energy is produced by the animal organism is controlled by the amount of thyroxin which is acting within the cells of that body. While not the only factor influencing the rate at which we live, it probably has more to do than any other substances with the governing of the speed at which energy is produced in the body. Plummer shows the average basal metabolic rate of exophthalmic goiter patients at the time of coming under observation to be 57 per cent. above normal, and the average rate in those in whom ligations were done and who returned in three months, to be plus 39 per cent. The average rate eighteen days after thyroidectomy is plus 19. Ligation probably causes the metabolic rate to drop approximately 15 per cent. Patients having adenomas of the thyroid also show variations in the output of the gland, the average rate on coming under observation being plus 39, and the average rate eighteen days after thyroidectomy, slightly above normal. The average energy transformation for normal persons is approximately 39 calories to a square meter of body surface an hour. The basal metabolic rate of normal persons does not fluctuate more than 10 per cent. above or below this average. Plummer's observations show that the thyroid hormone (thyroxin) determines the rate of formation of a quantum of potential energy available for transformation on excitation of the cell. The total amount of thyroxin in the tissues of the body of normal persons is in all probability approximately 13 mg. Each increase of 0.033 mg. (approximate) of the thyroxin in the tissues of the body increases the rate of energy output 1 per cent. Other factors being constant, the total energy output of the body varies with the amount of thyroxin in the tissues and the rate of excitation.

The work of Plummer is of the utmost importance in showing the thyroid to be a most active factor in the metabolism of the individual. The metabolic rate is raised or lowered by the activity or nonactivity of the thyroid and is measured by the amount of oxygen utilized from the air in respiration and the output of carbon dioxid in the expired air.

Exophthalmic goiter or gland hyperplasia, and overactivity develops an enormous increase in the metabolic rate, running in cycles of recurrence above the basal metabolism from 16 to 100 per cent. or more, according to the severity of the case. We thus have small exophthalmic goiters which are often more active in their effect than others which are evidently several times larger than normal. There is little or no deposit of colloid, as a rule, in the active cases, the colloid serving as a suspension agent for secretion, being deposited in the interior of vesicles when seen in simple goiters and as occasionally seen in areas of exophthalmic goiter. Therefore, we see that the energy output of the gland may vary greatly and the development of the remaining lobe, or even of half a lobe, after operation or partial thyroidectomy may subsequently cause a metabolic rate of from 40 to 90 per cent. above normal; this, however, rarely happens. It is difficult in some cases to tell the exact amount of gland it is necessary to remove in order to secure a drop in metabolism to nearly normal limits. Thus a few cases require a second, and a still smaller number a third operation. They are not the result of the failure of surgery to cure exophthalmic goiter, but are a still greater proof of the value of surgery in its cure. The removal of a larger portion of the gland accomplishes a cure depending on the activity of the individual gland, as the benefit of the operation is obtained through the reduction of secretion. Thyroid secretion will persist in the body for approximately eighteen days (Plummer). We are still lacking in the knowledge of the activating agent which causes hyperplasia, the discovery of which is undoubtedly impending.

The simple goiters of adolescence are common. Only such of them require operation as are troublesome because of pressure or are unsightly and resist treatment. In some persons they are associated with a demand of the body for thyroxin, and iodin in most any form relieves the gland of its colloid. The gland is not hyperplastic. In persons under 25 years of age, small adenomas in the thyroid and the simple colloid goiters are only occasionally recommended for surgery. Later in life, the degenerations which occur in goiters of long standing, such as encapsulated adenomas and encapsulated colloid areas, when the secretion has become reduced, may develop thyrotoxic conditions. Kocher pointed out the fact that the degenerations often occur in women from 40 to 60 years of age, whose goiters of long standing are altered by iodin treatment. The older the person when goiter develops, the more quickly must degeneration occur. These patients have staring, but not protruding, eyes, widening of the fissure through sagging of the lower lid, and, because of the rapid pulse and tremor, the condition is often looked on as exophthalmic goiter. Plummer has pointed out the distinction between this condition and exophthalmic goiter.

Simple types of goiter or adenomas often grow to enormous size and occasionally may project into the chest, as substernal goiters. In some instances the entire thyroid enlargement is beneath the sternum, and the troubles occurring are due to degeneration or pressure, with great increase in the size of the veins of the neck and chest, showing the impeded return circulation. The roentgen ray is an important factor in disclosing the size and location of such tumors.

The dangers incident to the operation are the condition of the patient, as in exophthalmic and thyrotoxic goiters, and those due strictly to the operation, as loss of blood, secondary hemorrhage, interference with respiration, injury to the recurrent nerves and to the parathyroids. The parathyroids and the recurrent nerve should be guarded in simple goiter by leaving the posterior part of each lobe of the gland on the posterior capsule, and by care in the use of forceps, and care in suturing the remainder of the gland and in the ligation of its vessels. Laryngoscopic examination should be made before operation to disclose the condition and the enervation of the vocal cords, as paresis or paralysis of an abductor or adductor may be present with but little change in the voice, and especially as unilateral tumors on the right side may produce paralysis of the left recurrent nerves, and surgical injury to the right side may result in total loss of voice. The parathyroids controlling the nitrogen elimination should be preserved as a guard against tetany. Local anesthesia may be used in special cases, but ether and local anesthesia are used in most instances.

The best method of approach is through a low collar incision. The sternothyroid and sternohyoid muscles should be cut high and resutured if they interfere with the surgical exposure of the gland; greater experience seldom requires their division. The isthmus should be removed and double resection is the operation of choice in simple goiter, while in the exophthalmic type, removal of the larger lobe, isthmus and part of the remaining lobe is the most common procedure. Drainage is instituted for twenty-four hours in the majority of cases, although the substernal goiter, the cavity of which does not immediately become obliterated by intrathoracic pressure, should not be drained longer than a few hours, at most, to retain a blood clot for organization; otherwise drainage in such cavities is indefinite.

RECURRENCE OF GOITER

In the simple forms of goiter, the same condition may remain in the portion of the gland preserved, to develop occasionally a recurrence of similar growth. Waves of activity of the gland occur and a small gland occasionally creates a far greater effect than a large one, through variations in its secretion, the quantity of the output or the resistance of the individual. Failure properly to judge this is bound to occur in a small proportion of cases. The cures by operation, however, are practically 70 per cent., with many of the remaining cases improved. Plummer explains to us many questions of recurrence, formerly supposed by medical men to indicate that surgery was not warranted. The results obtained by operation approximate what should be expected from the work of Plummer and Kendall, which I consider at this time the most important advance made in medicine of the chemistry of life.

War Infants—A New Type.—In the report on infant welfare in Germany lately published by the local government board, there is an interesting paragraph in reference to a controversy which has been waged for some time in that country as to whether the war has produced a new type of infant. The claim of having discovered these so-called "war infants" (Kriegsneugeborene) is put forward by a Charlottenburg doctor, who states that he has observed a distinctly new type of infant both in private practice and at welfare clinics. They are described as being not actually ailing but small, thin, delicate, backward in growth, with a wrinkled skin suggestive rather of old age then infancy. They are not prematurely born, as the description given would suggest, but underdeveloped at the time of birth. A constant restlessness accompanied by automatic grasping movements was noted as a characteristic feature of this type of infant, and the condition is attributed to the anxiety and nervous strain endured by the mothers, as well as to the restricted diet of insufficient and unsuitable food. The subject was discussed in various journals, but the majority of writers held that the existing war conditions had not produced a special type, though many admitted that the general increase in the number of excitable infants, and that a larger proportion were below the usual weight, developed slowly, and were reared with difficulty.—The *Medical Officer.*

GOITER IN THE SOUTHEAST*

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This paper is based on a routine systematic study of 407 patients with thyroid enlargements, somewhat less than half of whom have come to operation. The observations recorded in the histories have been made by myself, so that the information possesses whatever of merit may attach to personal responsibility, and lacks whatever of incertitude may result from multiple personal equations.

The particular points covered in the histories are some thirty-five in number and, of course, only a few can be commented on in this paper. For the most part the facts do not differ materially from those recorded respecting goiters everywhere. The outstanding features of the exophthalmic type—tachycardia, weakness, loss of weight, nervous instability, cardiac and renal disturbances, lymphocytosis, menstrual irregularities, fluctuation of symptoms, etc.—all run approximately true to recognized form. Among sixty-six patients in this class we have noted only two instances of skin bronzing, and only two instances of the severe vomiting and diarrhea that may accompany acute hyperthyroidism.

CLASSIFICATION

Speaking for myself, I confess that in classifying goiters a certain degree of equivocation cannot be escaped, no matter on what basis the task is undertaken. About three years ago I began to list my patients as carefully as possible under the groups suggested by Wilson and Plummer, whose classification takes into consideration both symptoms and histology. In this effort, as anticipated, quite a large margin of error cannot be denied, since the test of tissue examination, of course, could not be applied when operation was not done. When tissue was removed the agreement between the preoperative and postoperative diagnosis has been rather gratifying, though I cannot claim the approach to infallibility that the larger experience of others may justify. Conscious, in addition, of the attack on thyroid hyperplasia as a factor in determining symptoms, I nevertheless have grouped my cases as in the accompanying tabulation.

CLASSIFICATION OF CASES

Group 1. Hyperplastic toxic (16 per cent.)		
A. With exophthalmos	54	
B. Without exophthalmos	12	
		66
Group 2. Nonhyperplastic toxic (18 per cent.)		
A. Chronic cardiac type	57	
B. With acute symptoms resembling Group 1	17	
		74
Group 3. Nonhyperplastic nontoxic (60 per cent.)		243
Group 4. Unclassified, doubtful, etc. (6 per cent.)		24
		407

I am inclined to believe that the reason the percentage of cases in Group 2 is smaller than the percentage reported by Plummer is that perhaps ultraconservatism in labeling patients as toxic has been practiced, rather than because there is a real difference here and elsewhere in the incidence of this kind of goiter. Many patients who might more correctly be classified under 2 A have been put in Group 3.

Adenomas and Cysts.—One hundred and forty-six (35 per cent.) of these goiters were adenomas. In

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* Read before the Section on Surgery, General and Abdominal, at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

Group 1 there were four (6.2 per cent.); in Group 2 there were thirty-three (45 per cent.); in Group 3 there were 108 (44 per cent.).

However, when there are eliminated certain thyroid enlargements which were regarded as trivial and symptomless (chiefly in young girls, all in Group 3), the percentage of adenomas is considerably increased, being then 64 per cent. in Group 3 and 43 per cent. of the total number of patients studied. The adenomas in Group 2 B (with acute symptoms resembling exophthalmic goiter) are 50 per cent., as compared with 40 per cent. in 2 A.

The number of thyroidal cysts is small; only six occurring in the series. I am, of course, not listing as cysts the condition of cystic degeneration so common in old goiters.

INCIDENCE

While there are not obtainable figures to show the percentage of people anywhere in the United States who have goiters, it is a matter of common and trustworthy observation that the percentage is smaller in the South than at least in many other parts of the country. In the region of the Great Lakes I have more than once seen 50 per cent. of the waitresses in a restaurant with struma. I believe that one meets, per hundred, from five to ten times more women on the street in Chicago with goiters than on the streets of the average southern city.

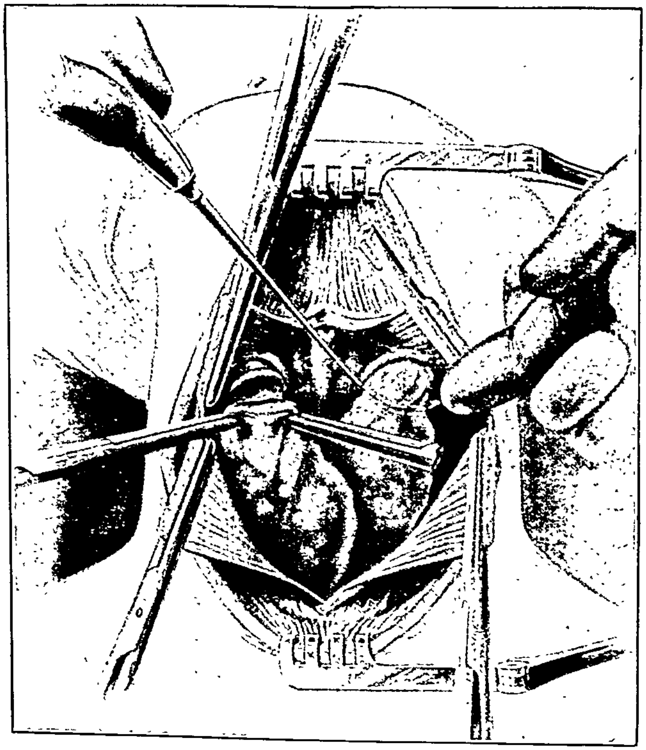

Fig. 1.—Ligation of upper pole before lobe is delivered. There is always between the thyroid cartilage and the pole a relatively avascular space through which the aneurysm needle may be passed. Not infrequently both upper poles may be thus ligated to advantage before either is resected.

Race.—Only eighteen negroes (4.5 per cent.) are represented. I believe goiter is less common among negroes than among white people, but I think the difference is not so great as these figures indicate. The situation is largely explained by the fact that most of these are private patients, and by the further fact that a nontoxic goiter does not usually compel one to consult a physician, and the negro does not do it. These figures, it must be remembered, apply to a territory in which the proportion of white people is somewhat larger than that of colored people. Six of the eighteen colored patients had exophthalmic goiter. Ten of the remaining twelve had nontoxic adenomas. Only one colored patient was listed in Group 2.

Sex.—This list includes only twenty-five males, 6.25 per cent. of the whole series. I think this represents the approximate truth as to local sex incidence. In Group 1 (exophthalmic) there were three (4.6 per cent.); in Group 2 A (toxic nonexophthalmic with chronic symptoms), one (1.4 per cent.); in Group 3 (nontoxic) sixteen (6.6 per cent.), of which twelve were adenomas. The diffuse nontoxic thyroid so common among young women is almost unseen among men. Four male cases were not classified clearly.

Relatives.—The inquiry included aunts and cousins. Ninety-five (23.5 per cent.) of these individuals had one or more relatives with goiter, a result not very significant.

With the inquiry restricted to the immediate family, fifty-three patients (12.5 per cent.) had fifty-eight relatives with goiter. These percentages are naturally much lower than in localities in which goiter is more prevalent.

The sister of the patient has been more frequently affected than the mother. The history of a relative with goiter is only half as common among the toxic as among the nontoxic thyroids.

Water Supply.—I have been totally unable to associate goiters with drinking water as an etiologic factor. In the average family drinking the same water, only a single goiter has developed. In only two instances has it been found that the same well supplying more than one family has among those drinking its water a suspicious number of goitrous persons; and in those instances it was not possible to get the families concerned to boil the water for observation of the effects. Among the inhabitants of no particular county, and of no particular watershed, and of no particular major geologic formation in the state of Georgia does goiter, in my opinion, exist in a significant manner. All my patients in the state have been charted with particular reference to this point, with negative results.

POSSIBLE EXTRATHYROIDAL CAUSES OF SYMPTOMS

In Group 2, and frequently in Group 3, there are nervous instability, lack of sustained physical endurance, usually a spare build, frequent transient tachycardia without good reason, etc. Always the question arises whether there is a competent extrathyroidal source of the patient's complaints.

Careful questioning with a thorough physical inventory will not infrequently evolve the unbiased opinion that the patient's thyroid plays a minor, though perhaps real, part in the production of her disability.

Effort has been made to exclude these patients from the present series, but there are memoranda of doubt on the score of such troubles as family cares, worry about lost positions, financial reverses, suspected tuberculosis, prostration following pneumonia, etc., hereditary nervous instability, overwork, family infelicity, menopause, pellagra, nephritis, rheumatism, chorea and pelvic disease.

Recently I believe one may add to his ability to affirm or deny the major participation of the thyroid by the use of the Goetsch test—a significant prompt exacerbation of hyperthyroid symptoms being produced by the injection of epinephrin if the thyroid is really overactive.

PELVIC DISEASE

As to pelvic disease, there is nothing significant in the histories of patients in Group 3, though the incidence at puberty (and perhaps at the menopause) proclaims the relation between the thyroid and the female sexual glands. In view of the current loose idea that menstrual activity influences the size of a thyroid already enlarged, and in view of the further fact that women are inclined to look for abnormal phenomena in connection with any organ or function during menstruation, it is rather surprising that only 12 per cent. of these women believed that there was any change in the size of the growth during the menstrual period. Furthermore, in Groups 1 and 2, a judicial analysis of the information that has been gathered with special reference to this point at the time when the histories have been taken does not justify the statement, so far as these patients are concerned, that goiter is a special consequence of pelvic disease.

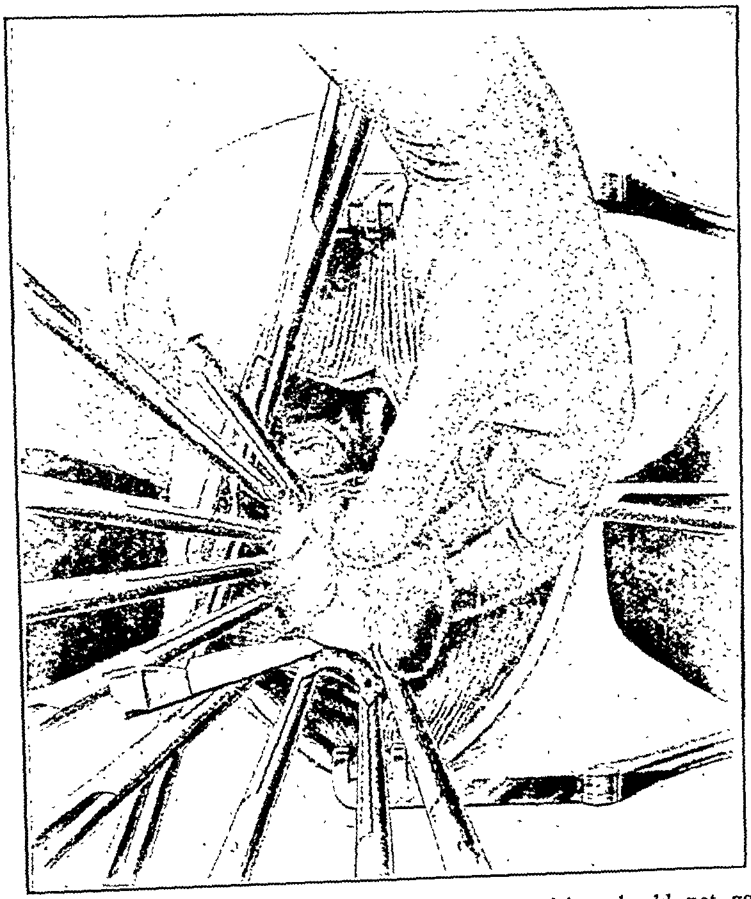

Fig. 2.—Lobe released at upper extremity. Incision should not go entirely through gland at this point.

Except for the fact that thyroid hypertrophy is admitted frequently to accompany increased ovarian activity, and that increased ovarian activity may be a part of pelvic disease, I see no significant sequence of goiter on pelvic disorder as compared with the sequence of goiter on any other debilitating affection such as pneumonia, nephritis, pellagra, rheumatic fever or tonsillitis. Indeed, even without invoking the interrelation of the ovary and the thyroid, I doubt if the number of goiters following pelvic disorder is suggestive of anything except that thyroid enlargement may follow any severe or prolonged physical or mental tax.

It is true that of the women in Groups 1 and 2, 31 per cent. gave a history of some sort of pelvic disorder ranging from dysmenorrhea and simple retroversion to pus tubes and fibroid tumors. This, however, must not be interpreted as too significant. In Group 1 all the women included in the 31 per cent. just mentioned were married and most of them had borne children; and in Group 2 nearly all were married. It is probable that 31 per cent. of any considerable group of married women will have some sort of pelvic trouble, so that the number of goitrous women in this series with antecedent pelvic disorder cannot be said to be suggestive.

RELATION BETWEEN APPEARANCE OF GOITER AND APPEARANCE OF SYMPTOMS

Group 1. The average age at which the goiter was first noticed is 27.8 years. More than 50 per cent. appeared before 25; 20 per cent. appeared before 18, and an additional 7 per cent. are thought to have appeared at puberty, disappeared, and reappeared at ages ranging from 26 to 49.

The average at which the patients began to notice symptoms was 30.35, or 2.55 years after the appearance of the goiter. This period, however, is not usually so long as the figures seem to prove. If we disregard seven patients who gave this period of comparative immunity as being from 5 to 29 years, it is discovered that there is somewhat less than twelve months intervening. Indeed, in the average case of exophthalmic goiter the time is shorter still.

Thirteen per cent. of this class thought the symptoms antedated the enlarged thyroid, while 35.5 per cent. thought the goiter and the symptoms appeared simultaneously.

Group 2. The average age at which the goiter is thought by the patient to have appeared is 24½ years. Nearly 50 per cent. appeared prior to 18, and symptoms developed from a few months to seventeen years later.

The average age at which symptoms began to be noticed was 28 plus, three and one-half years after the first known presence of the goiter. This period would be lengthened if we included in this class a number of patients who may clinically belong here, but who have been listed as nontoxic under Group 3. It is also to be remembered that since in this group the symptoms develop gradually, the patient is frequently unable to fix on a date since which her health has been definitely impaired.

MAXIMUM RESECTION

From the beginning of my experience I have followed the plan of resecting both lobes in diffuse enlargements. Only on rare occasions has this rule been disregarded, and then because, when operation had been undertaken on a bad risk, it seemed unwise to tax the patient with resection of the second lobe. And, proceeding on the idea that in toxic goiter the patient is suffering from altered secretion or too much secretion, there has been no hesitation to sacrifice a maximum amount of tissue on both sides. Acting under this plan I have not yet had to operate on a patient the second time. Those few patients whose second lobe was left deliberately, though reluctantly, have not improved to the degree desired, but have become so much better that they have uniformly declined a second operation. Furthermore, the conviction that the improvement in these patients compares unfavorably with that of those who have had the desired ideal amount of tissue removed cannot be escaped. This statement comprehends the assumption that these few patients were, as a class, the most seriously affected by the disease, and therefore might be expected to get the least benefit from any treatment.

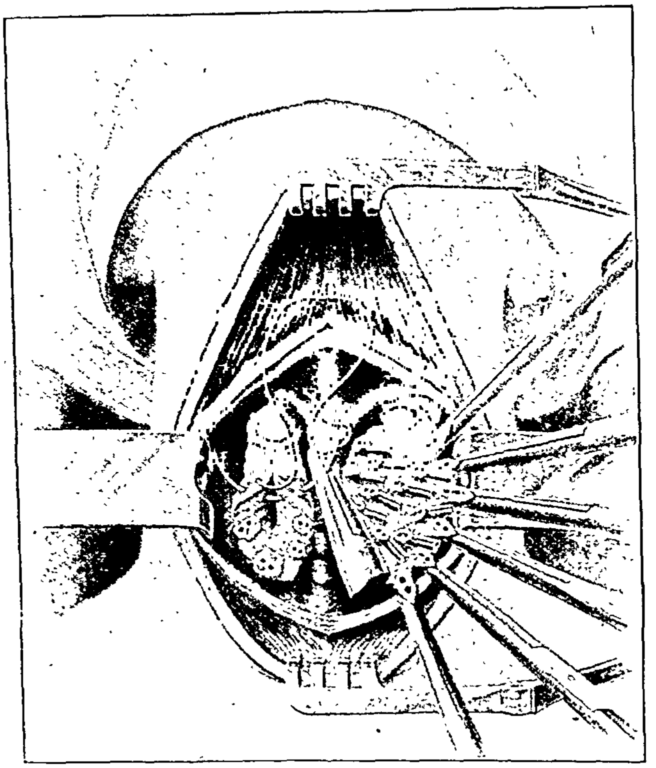

Fig. 3.—Most of the forceps shown can be set before the vessels are cut. Most regurgitant bleeding can be kept under reasonable control by the hand that holds the lobe as the resection proceeds. Covering cut surfaces as indicated in the right lobe is desirable but cannot always be practiced.

Pursuit of this plan has not, in my cases, produced any instance of the least suspicion of postoperative myxedema, nor has it produced in any patient a permanent loss of voice; in fact, in only one person with this particular kind of thyroid enlargement has temporary aphonia resulted. The only patient in the list with some symptoms of postoperative tetany had enormous bilateral adenomas; so that this single occurrence cannot be urged against the procedure in diffuse enlargements or, indeed, against the principle in general.

SUMMARY

1. The incidence in the Southeast of the several types of goiter departs in no significant way from the incidence in other areas where thyroid troubles are not definitely endemic. Sixty per cent. of all goiters are listed as nontoxic; excluding from consideration the symptomless goiters of puberty, 64 per cent. of the nontoxic goiters are adenomas.

2. Goiter in this territory is relatively rare; the colored race exhibits less tendency to a pathologic condition of the thyroid than does the white race; men are less frequently affected than published figures indicate; the occurrence of nontoxic goiters in families is suggestive, but not significant; no particular water supply is under suspicion.

3. There appears in this series no significant relation between pelvic disease and a pathologic condition of the thyroid.

4. Maximum double resection in diffuse enlargements is wise.

TEMPORARY LOSS OF VOICE FOLLOWING THYROIDECTOMY *

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The temporary loss of voice following thyroidectomy is a complication that gives the surgeon in his early thyroid work an untold amount of anxiety and worry. There are several distinct causes of this complication, which if appreciated by the operator will greatly lessen the liability of its occurrence; but in spite of this, the experienced surgeon will occasionally be greatly disturbed by one of his patients who loses her voice after operation, and who is husky or speechless for months following.

The causes of temporary loss of voice may be put under four headings: (1) trauma to the inferior recurrent laryngeal nerves; (2) trauma to the larynx and trachea; (3) syphilis, and (4) hysteria.

Trauma to the nerve should be prevented whenever possible—trauma that is caused by pinching with clamps; including the nerve by suture in tying off vessels or catching it in suturing; and stretching the nerve in its sheath, causing postoperative edema and by pressure from postoperative blood clot.

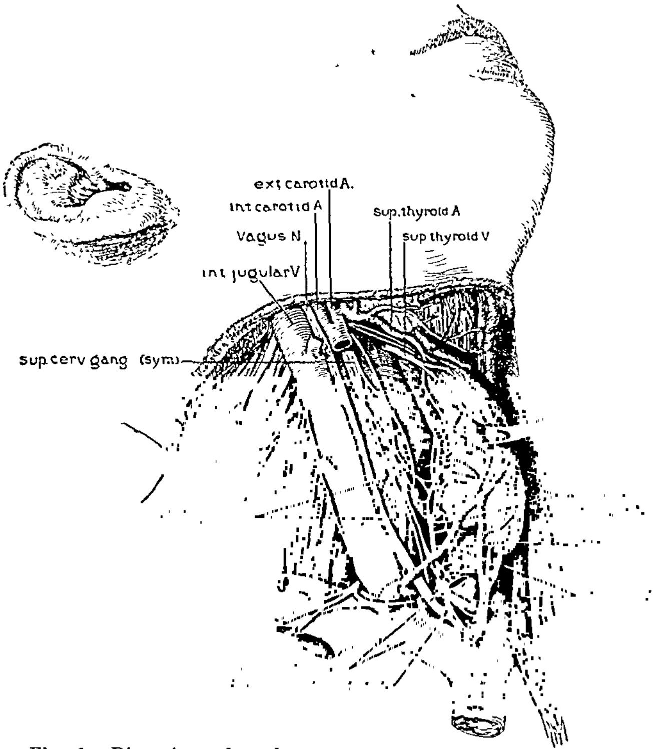

Fig. 1.—Dissection of neck, showing the intimate relation of the recurrent laryngeal nerve to the inferior thyroid artery. The gland has been pulled toward the midline to expose the nerve

To avoid the nerve, the anatomy of the part must be well known. The thyroid gland is entirely enclosed

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by a fibrous capsule which divides posteriorly into two layers, one passing behind the esophagus to unite with the layer from the opposite side, and the other between the trachea and the esophagus. The recurrent laryngeal nerve arises from the pneumogastric nerve, and passes up by the side of the trachea behind the gland and its capsule and next to the esophagus to enter the cricothyroid membrane. On the right side the nerve is intimately associated with the inferior thyroid artery, passing either under or over it. On the left side it is somewhat deeply placed and less often associated with the artery.[1] The nerve on the right side, therefore, is in more danger of being injured than the one on the left (Fig. 1).

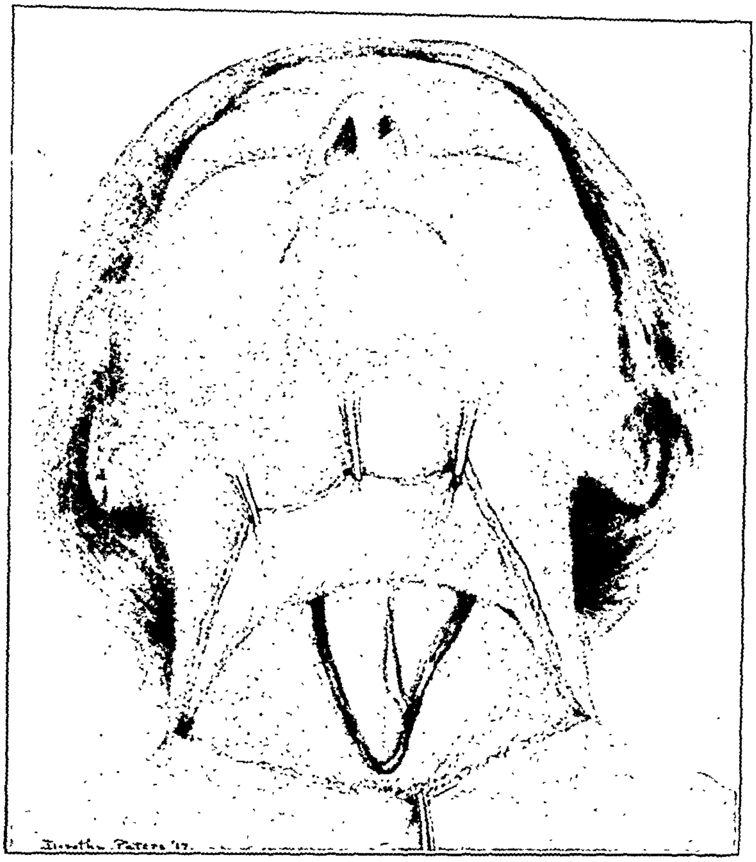

Fig. 2.—A broad collar incision for exposure

To avoid the nerve, the dissection should begin well up on the side of the gland and not down underneath it. The vessels are clamped as they enter the capsule of the gland, and if the nonvascular zone described by Crile is entered, it is surprising how the gland may be dissected out of its bed with little loss of blood. It is important always to stay well within the capsule of the gland, because the nerves lie behind it. In attacking the lower poles of the gland, the forceps should be placed high up on the gland parallel with the long axis of the neck. Judd often includes some of the gland with the vessels in this step of the operation (Fig. 5). Any rough handling, forcible delivery of the gland, or dry gauze dissection in this region should be avoided, for it is here that trauma to the nerve takes place.

In case of severe hemorrhage, it is unwise to attempt to catch the bleeding vessels in a pool of blood. The vessels themselves should be found and clamped individually. If the gland has been resected, as Balfour[2] advises in large colloid goiters, it is well to remember the close proximity of the nerve to the lower pole and to the posterior surface of the gland, and make sure that the nerve is not caught in the lock sutures.

Judd, Mann, and New[3] have shown that the function of the vocal cords in dogs is permanently lost by section of the nerves. Pinching the nerve directly by hemostats caused temporary loss of function, the length of time varying with the distance of the trauma from the larynx. They also found that if the nerve was ligated with any form of suture material, the function would never return. Pressure from postoperative blood clot also caused suspension of function; but putting the nerve on forcible stretch, temporary or permanent, had no effect on the function of the vocal cords. I cannot believe that stretching the nerve is not a factor in causing temporary loss of voice. We have all seen patients who talked well for a few hours or a day after operation and who showed no symptoms of postoperative tracheitis, lose their voice on the second day. This I have always interpreted to mean edema in the sheath of the nerve with interference of its function.

Trauma to the trachea and larynx is followed by tracheitis and laryngitis and is frequently cause for temporary loss of voice, especially in apprehensive patients. The extent of the tracheitis varies with the amount of the trauma, and it is important to subject the trachea to the least amount of traction and injury during the delivery and the dissection of the gland. It is not wise to deliver or dissect out the thyroid in one set way. A trachea that has been encroached on by an enlarged gland will not stand the same amount of lateral pressure as one that has not been encroached on.

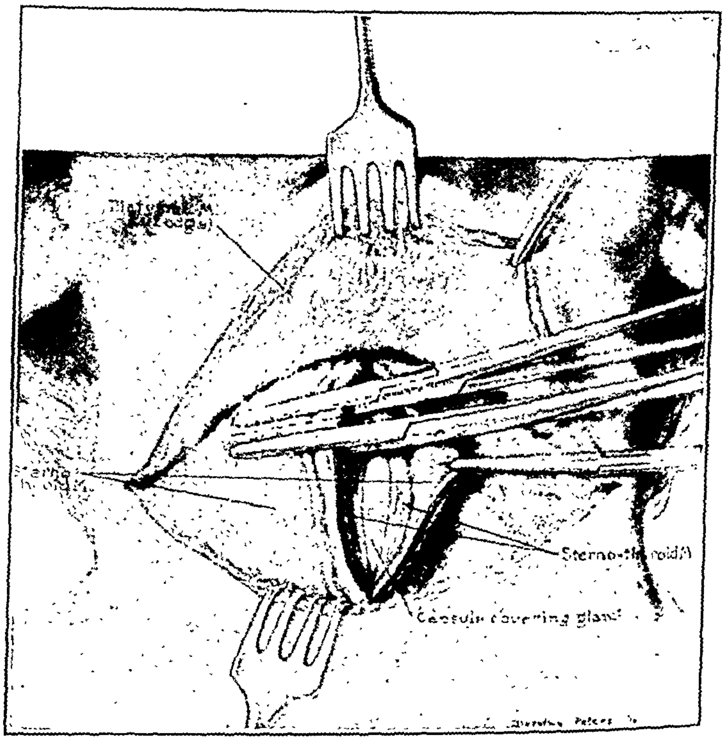

Fig. 3.—Sternohyoid muscle to be cut along line of dashes. Double trap door is often made for greater exposure by cutting *sternohyoid* of opposite side.

The surgeon should rely on the services of a skilled anesthetist in these operations, for the anesthetist's judgment of the patient's color and breathing should guide him as to just how much traction he may employ with safety or whether he should lessen the amount he is already using. To prevent stretching the nerve it is best to deliver glands from above downward whenever possible (Fig. 4). If this cannot be done it should be attempted laterally or from below upward—any way to safeguard the trachea. Substernal growths cause anxious moments until they are delivered. Substernal cysts can often be punctured with safety and delivered easily. It is often better to begin the dissection of large colloid goiters with much lateral encroachment from the midline at the isthmus rather than laterally or from either pole (Fig. 6). This method is more difficult and more vascular, but it saves the trachea from an undue amount of trauma. In dissecting the gland off the trachea itself it is better to leave some of the isthmus rather than to do a clean dissection down to the fascial covering (Figs. 7 and 8). Many glands are firmly adherent to the trachea and are separated from it with great difficulty. It is an easier dissection to leave a small amount of gland on the trachea in the average case, although in the hyperplastic gland the bleeding may be hard to control. Tracheal trauma is a common cause of temporary loss of voice. It adds much to the patient's discomfort, and in the severe case it may be a factor in producing postoperative pneumonia. Free exposure is important, and it is often necessary to turn a double trap door of the sternohyoid muscles or even to cut some of the fibers of the sternomastoid to obtain it (Figs. 2 and 3).

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[1] Mayo, C. H.: Collected Papers by the Staff of St. Mary's Hospital, Mayo Clinic, 1905-1909, p. 419.

[2] Balfour, D. C.: Advantages of Double Resection in Certain Types of Goiter, Ann. Surg., May, 1914.

[3] Judd, E. S.; Mann, F. C., and New, G. B.: Ann. Surg., 1918, 67, 257.

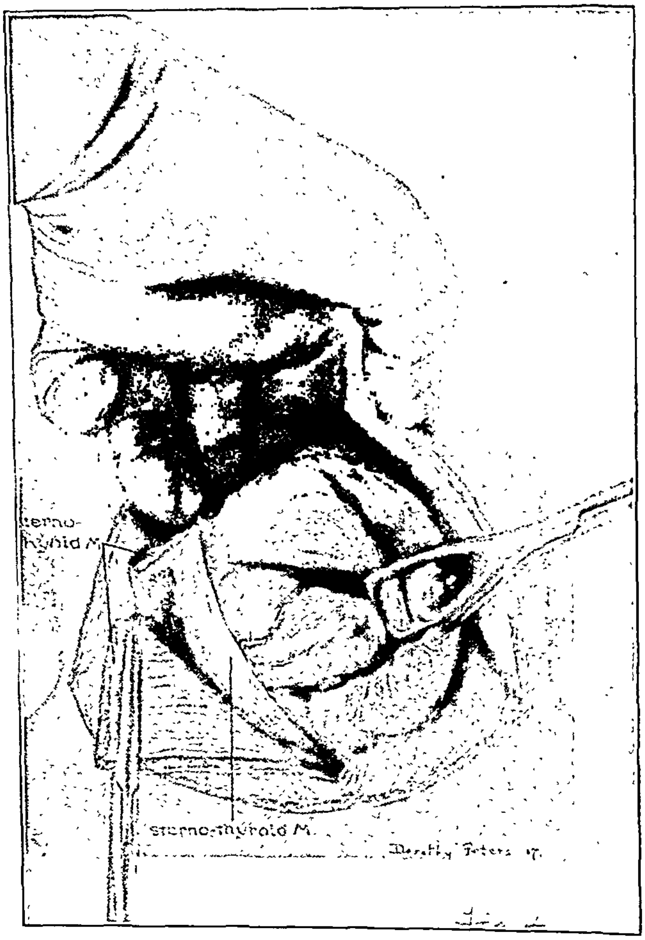

Fig. 4.—Delivery of the gland from above downward to prevent stretching of nerve.

It is wise to have a laryngoscopic examination made of all patients before and after operation. Unilateral abductor paralysis or lagging of one cord may be found in patients with goiters of long standing that have caused pressure on the nerve. The surgeon in justice to himself should tell these patients not to expect any improvement in their voices after operation. New believes a bilateral abductor paralysis to be of syphilitic origin and that a bilateral adductor paralysis is due to hysteria. This has been borne out several times in my work. To cite a case:

> A woman, aged 45, with a small goiter, complained of tracheal pressure, interference with speech, and difficulty in breathing. I knew her to be syphilitic and operated on her against my better judgment. She talked well after operation, but had a complete loss of voice one week later, because of a bilateral abductor paralysis. Six months after operation her breathing became so seriously interfered with that a tracheotomy had to be performed. Later I sent her away for consultation, and a well known man wanted to eviscerate her larynx, believing the paralysis to be due to the cutting of both laryngeal nerves. I knew this was not the case, for she had talked well after operation. Under a thorough and prolonged antisyphilitic treatment her voice has been fully restored.

Simonton[4] believes that many enlarged thyroids are of syphilitic origin and suggests that the improvement many of these patients show after taking potassium iodid may be explained in this way. Certainly it would be well to have a Wassermann test taken of all patients who have insignificant goiters but who complain of interference with speech.

I believe there is a strong hysterical element in many patients who lose their voice for a time following operation. We are well aware of cases of hysterical aphonia. Only a few weeks ago, the papers were full of the case of a well known singer who lost her speech completely after a severe nervous shock. Many patients come for operation with the fear that their voices will be lost after it. A surgeon working in a small community may have the wrong kind of suggestion to contend with. The thoughtless or unfriendly remarks of a laryngologist who examines a patient during the stage of temporary loss of voice may do much to intimidate a whole community about thyroid surgery.

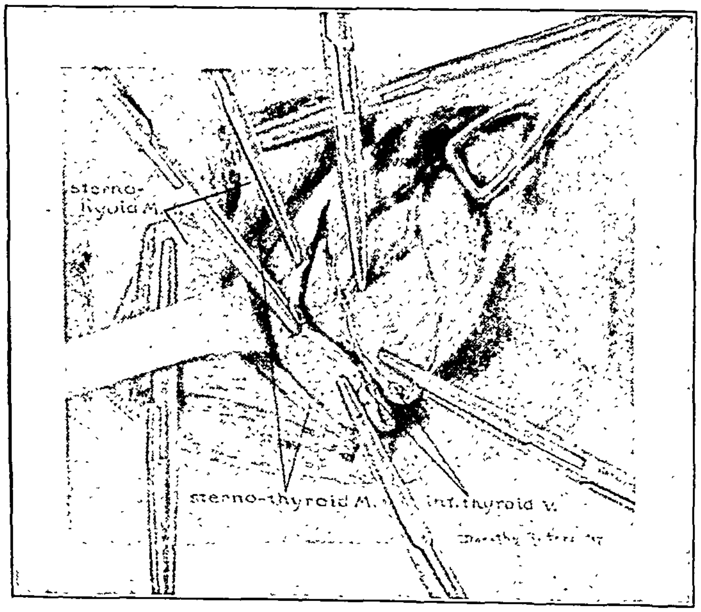

Fig. 5.—Treatment of vessels at the lower pole. A small amount of thyroid is included in the bite of the forceps.

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[4] Simonton, T. G.: Syphilis as a Factor in Diseases of the Thyroid Gland, Pennsylvania Med. Jour., 1918, **21**, 293.

I maintain that many of our patients, who are fearful before operation, awaken after it to find speech painful and difficult, and they send strong impressions to their subconscious minds which make speech impossible for a given time. Much of this preoperative fear can be allayed by the proper kind of suggestion from the surgeon and his associates. This psychologic team work applies more especially to the management of bad types of hyperthyroidism, but it may be applied in all goiter cases with advantage. The anesthetist can give valuable suggestion to the subconscious mind during the early stage of anesthesia. Our nurses are trained to make all of our thyroid patients talk in their drunken ether state. They must be made to articulate some word. This is carefully noted on the chart, and should the patient lose her voice it is of no source of anxiety to any of us. Occasionally it is impossible to get a patient to talk immediately after operation, and these are the patients who do worry us—but I know of no patient of mine who has had any permanent disturbance with speech.

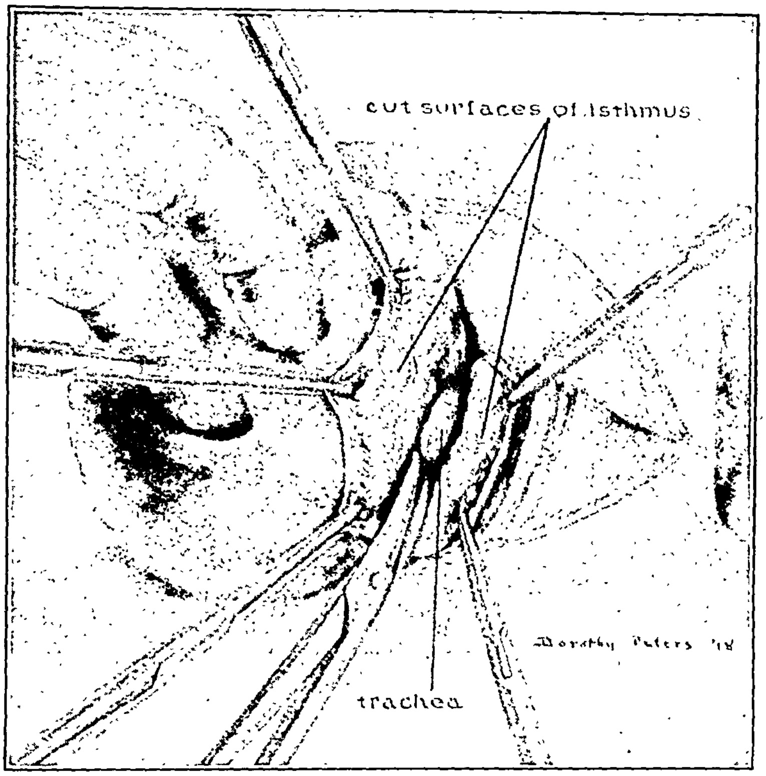

Fig. 6.—Dissection of gland, beginning at isthmus to safeguard trachea

The postoperative laryngoscopic examination is of importance, for if bilateral adductor paralysis alone is present it is surely due to hysteria. Most of the patients recover within from a few weeks to a few months with the proper kind of suggestion, but the rebellious case may worry the surgeon and startle a community for the time being. All forms of suggestion have been employed from the mildest to the hypnotic. It is often necessary to treat the patient's family as well as the patient. We use repeated laryngoscopic examinations with assurance, the battery, the therapeutic lamp, and gentle massage to the muscles of the neck. In the purely hysterical type there is complete restoration of voice as soon as the patient can be convinced that she can talk. Judd tells of a patient who feared she would lose her voice after operation, which she did for months. She believed that if an adhesion was loosened in her neck her voice would return. She was anesthetized, the muscles of her neck were massaged. Her voice returned at once. Sistrunk had a patient who was given mild anesthesia and was merely assured while going to sleep that her voice would return. She talked as soon as she awakened. One of my rebellious patients had to be hypnotized twice. Another, whose family could not be convinced that permanent damage had not been done, was made to relax the muscles of her throat, and take a deep inspiration with her mouth open. She made a loud crowing sound. Her mother who was present cried out, "Her voice has returned." She was able to talk at once.

Communications from different men doing thyroid surgery show an average of from 3 to 5 per cent. of cases of temporary loss of voice, and from 20 to 50 per cent. of huskiness following their operations. I have had 20 per cent. of huskiness and 3 per cent. of temporary loss of voice since employing the methods herein described. This is a much smaller number than I formerly had when I did not carry out measures to safeguard the nerves and the trachea from trauma and did not consider hysteria as an element in producing the complication. These conclusions are based on a clinical study of 1,102 goiter patients, 619 of whom were operated on.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. MAYO, JONES AND GUTHRIE

Dr. Charles N. Dowd, New York: The development of the various phases in the treatment of goiter has been very interesting. Many of us remember when patients with distinct symptoms of exophthalmic goiter were not considered suitable for surgical treatment. In the intervening years, however, we have learned much of the natural history of the disease, hence can better select the treatment which is best suited to each case. Surgical technic has also improved, hence operation is now successful in numerous instances in which formerly the patients would have succumbed. Paitents who suffer merely from pressure symptoms will be cured by removing the adenomas which cause the pressure.

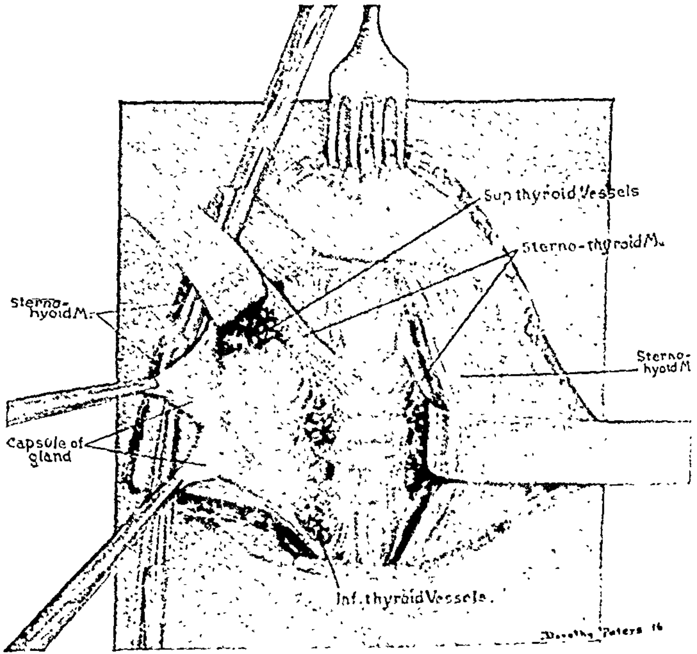

Fig. 7.—Former method of removing gland from trachea. Note that the trachea is bared to the fascial covering.

Dr. Jones called attention to the problems found in different parts of the country. One's attitude will depend largely on the type of cases seen. In New York we see a large number of the intermediate type of goiters which present moderate toxic symptoms in the course of chronic thyroid enlargement, even though these toxic symptoms have been lacking during the greater portion of the patient's history. These patients form a very satisfactory group from the standpoint of surgical treatment for they make wonderful recoveries after moderate-sized operations. The real problem is to sort out those patients who have enough toxic symptoms to warrant surgical interference. The recent work which has been done in this line is most interesting. Kendall has done much to make our knowledge definite. The epinephrin test, as advocated by Goetsch, is of great value in determining the toxicity of these patients. We have a guide to determine before operation, while the patient is under observation, which symptoms are due to the thyroid and which are due to other influences.

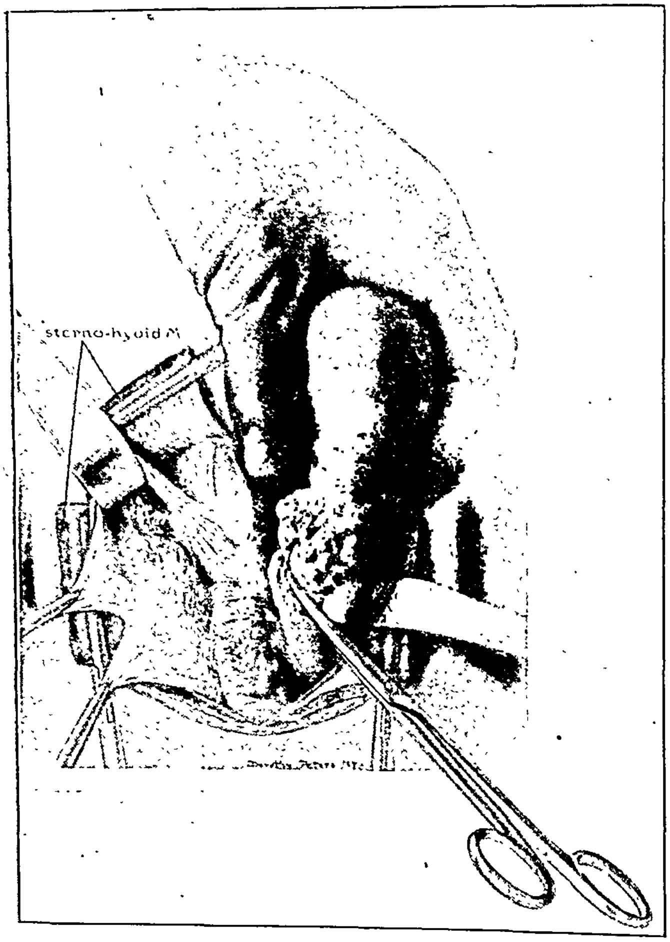

Fig. 8.—Method now used whenever possible, leaving small amount of thyroid on the trachea.

I was interested in hearing Dr. Jones say that he had not seen any cases of myxedema following the removal of a large portion of the thyroid. I have not so much fear of hyperthyroidism as I used to have. Patients who have lost a very large portion of their thyroid still do not show hyperthyroidism.

As to the technic in covering the raw surfaces, we have the choice of running the chance of nerve injury or of expecting a moderate delay in the final healing. If we sew the capsule edges too tightly, we increase the danger of nerve injury; if we leave the posterior capsule in its position and the cut surfaces of the thyroid uncovered by capsule, we will lengthen the period of convalescence.

Dr. Arbuthnot Lane, London, England: I feel rather in an awkward position. I feel ashamed to differ with my friend, Dr. Charles Mayo, who, with those at Rochester, has made this work notable and famous all over the world. I am sorry to say that I am in direct opposition to him. I would like to go into the cause of things: First, we have to consider three big organs—the thyroid, the spleen and suprarenal. These three organs, under the influence of strain produced by the fact that they are flooded by poisons, behave badly. For instance, the suprarenal produces Addison's disease. The bravest surgeon has not started to remove the suprarenal. The spleen produces pernicious anemia. Only yesterday I had the pleasure to be present at operation by Ochsner. He had a case of pernicious anemia. His principle was that he ought to remove the spleen, infected gallbladder and infected appendix. He claimed that he cured these patients and saved them from death. He starts at the wrong end. The cause of that infection is the large intestine. Like most surgery, this is the surgery of end results. The connection between the thyroid and the sex organs is intimate. It is well known that the men in India can tell in a moment whether their women have been tampered with by the condition of their thyroid. I have not removed the thyroid for a very long time. I have cleaned up the contaminated food supply; I have removed the large intestine, and then these enormous thyroids gradually grow smaller and disappear. Many of the American surgeons saw my patients in England, people who had had enormous thyroids. We removed the intestine, and the enlarged thyroid gradually became smaller. The cases not completely successful are the exophthalmic goiter cases. Enormous improvement takes place, but the disease is not obliterated completely. The food supply is the secret of disease. I am certain the more we go into the subject the more we will realize the contamination of our food supply and the immense amount of filth we are taking into our circulation every day through the small intestine. I do not think that you can have failed to notice that in Raynaud's disease, where the fingers and toes are gone, within twenty-four hours after operation the patient's reaction is normal. It shows that we are absorbing a large amount of poison from the small intestine; it passes by the filtering organs and gets into the circulation. Mr. Garrison of India showed that he could produce goiter in various forms by feeding certain filth. He could produce a congenital condition affecting pregnant mothers and cure them by cleaning up the intestinal tract. Surgery has gone mad in that it is treating end results and not dealing with the primary cause. As we specialize we lose our common sense

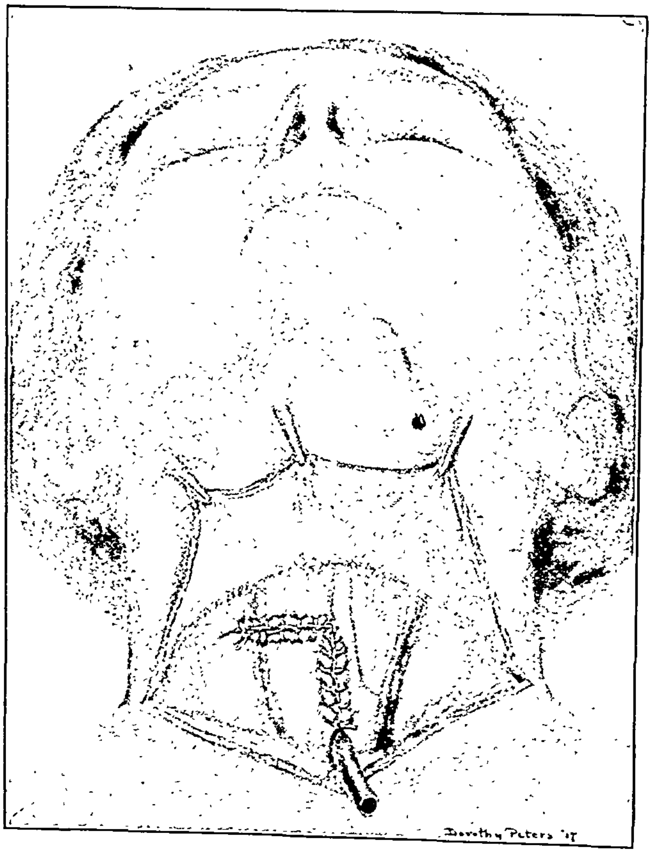

Fig. 9.—Closure of wound.

by developing our special sense. I am not criticizing the beautiful work of Dr. Charles Mayo, but I think it is useless to remove the spleen, infected gallbladder and appendix to cure infection. It is based on a false principle. I am sorry to appear in the light of a heretic.

Dr. Miles Porter, Fort Wayne, Ind.: There is as much reason for removing a permanent goiter for fear it will become toxic as there is for removing a mole or similar lesion for fear that it will become cancerous. I would like to emphasize the point that has been made, namely, that there need be little or no fear over the relatively total removal of the thyroid. I have seen a large number of cases in which I or my friends have had reason to regret the fact that they removed too little of the gland. I have yet to see one illustration of a too nearly total removal of the gland.

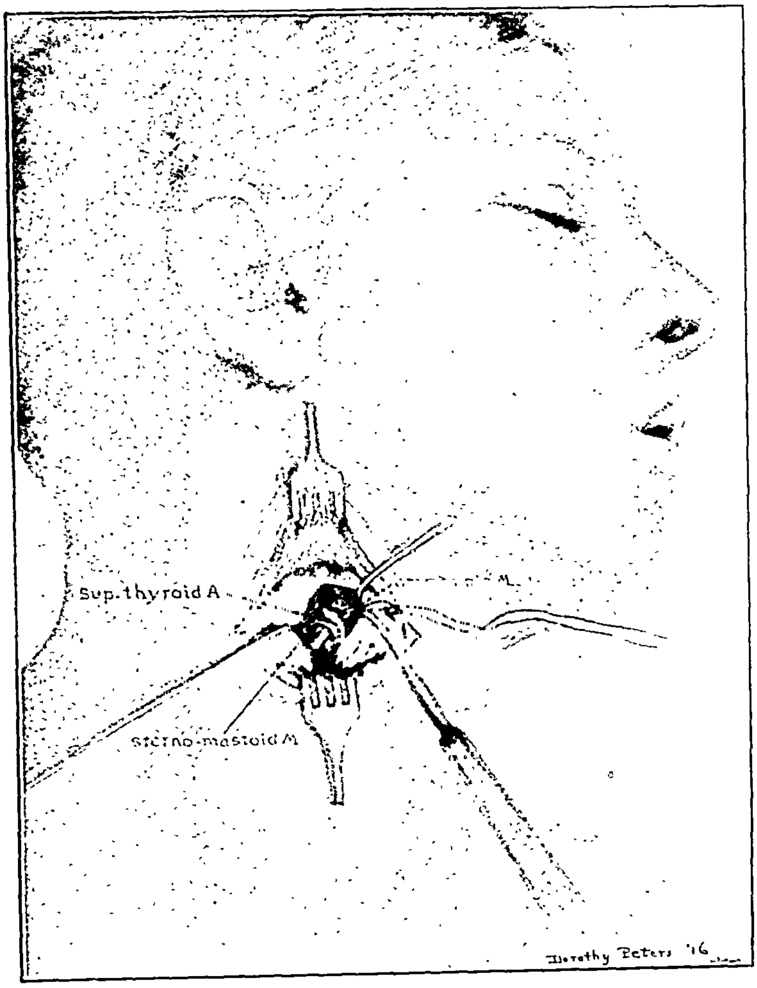

Fig. 10.—Single ligation of superior thyroid artery.

Dr. Rollo C. Dugan, Ottawa, Kan.: There are cases in which we have to deal with the end results, cases which are so very bad that we can do but little, as in exophthalmic goiter, and I wish to call attention to two particular methods of technic in these very bad cases: One is the method of hot-water injection, which I think was originated by Dr. Porter. In the old and very feeble, there is no question but what they can be improved immensely with very little shock by the hot-water injection. The other method consists of breaking up of the areolar tissue around the thyroid destroying the lymphatic and nerve supply. It will produce miraculous results in some of these very bad cases. I had one patient who went on the table with the pulse almost uncountable; she had been vomiting continuously for over a month. I had her in the hospital for a week before operation trying to improve her condition. She acted so badly on the table that after I made the collar incision with the intention of removing part of the gland I became alarmed and simply broke up the areolar tissue around the gland. She improved immediately. I saw her again recently. Her pulse was 60, and she was driving her own car and doing the major part of the farm work, her boys having gone to the war. She had absolutely nothing done but the collar incision and the areolar tissue broken up around the gland.

Dr. H. J. Stewart, Oak Park, Ill.: I understood Dr. Jones to say that epinephrin would transform a serious case of hyperthyroidism into a comparatively mild one. I would like to know more about that.

Dr. C. H. Magee, Burlington, Iowa: I wish to say a few words on the anatomy of the gland. Dr. Guthrie showed a few cuts of the ligation of these arteries, and Dr. Mayo referred to the abundant supply of blood to the gland. In my work on the anatomy of the thyroid, I discovered one subject who had a rudimentary superior right thyroid artery and an absent inferior left thyroid. A subject like that might cause a little embarrassment to an operator. In regard to the inferior thyroid in its relation to the recurrent laryngeal: frequently the inferior thyroid runs posterior to the recurrent laryngeal. I have seen a number of subjects in which the inferior thyroid divided and embraced the recurrent laryngeal. I have also seen two subjects in which not only the inferior thyroid divided, but the nerves themselves divided and were interwoven like the canes of a chair. That would offer embarrassment to an operator. The late Professor Cunningham of Edinburgh lays down the dictum that the left recurrent laryngeal lies deeper than the right. I never yet could see the truth of that observation. Most anatomists in this country claim the same. I was pleased with Dr. Guthrie's discussion of the causes of the loss of voice. I believe in a great many cases it is hysteria more than anything else.

Dr. Edwin P. Sloan, Bloomington, Ill.: I think we must admit that operation on the thyroid is relatively safe. Even those patients operated on by the beginners in thyroid surgery do well. You never see an unsatisfied patient. You see some who are not entirely well, not from the operation, but from the condition that the goiter brought about. I do not think that we ought to try so hard to sort out the different types of goiters. Every goiter is a menace to the patient, and every goiter means disaster some day, so the only question is whether the patient has goiter, and if so, how can we get the goiter out without killing the patient. A great deal too much importance is placed on the diagnosis of the different types, and how to prevent injury to the recurrent laryngeal nerve and a lot of other possible disasters that might occur at the time of operation. A goiter operation is safe in the early stages of the disease. It is the most satisfactory surgical operation done today from the standpoint of the patient, consequently of the surgeon.

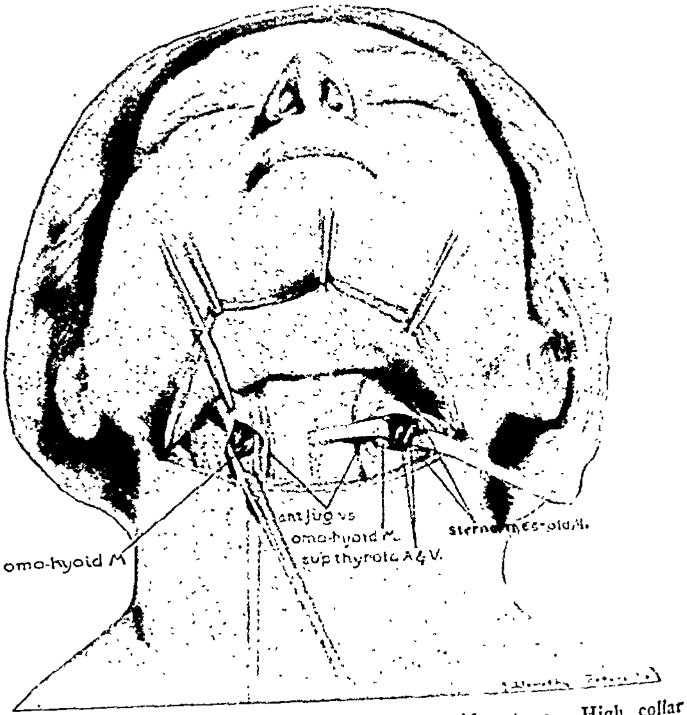

Fig. 11.—Double ligation of superior thyroid artery. High collar incision.

Dr. Charles H. Mayo, Rochester, Minn.: Nature endowed us with an oversupply of nearly all of the important glands of the body, the hypophysis, suprarenals, the thyroid, and a reduction of 50 per cent. or more in the adult cuts very little figure. The loss of the thyroid in the child makes an enormous difference. The vegetative existence of life is from 100 per cent. below normal, which is death, up to 40 per cent. below normal. Through this range of energy output the vegetative existence is carried on by the creatin body that we have just begun to learn something about. From 40 per cent. up to normal the energy output is carried on by the action of the thyroid. We have supply enough on hand from the thyroid to last from eighteen to twenty-one days. We eat food, take in protein, reduce it to sixteen varieties of amino-acids. These amino acids heavily loaded with nitrogen are then broken down liberating the nitrogen which is carried through various chemical forms, and through the action of the parathyroids it is eliminated as urea, in urine. If you break that chain at any point you interrupt one of the most important things in the body in the shape of metabolism. We eat certain foods which produce energy. We can tell exactly how much fuel is burned by the amount of oxygen taken into the blood. We know exactly the amount of carbonic acid and of urea thrown out. Through these studies one can test to an absolute degree the energy output of the body, the burn up of the food. Iodin is important. Give these young people who have large thyroids, iodin and down goes the thyroid. Iodin alone will not make a cretin normal or restore the myxedematous. Iodin passing through the thyroid will.

Sir Arbuthnot Lane may be right in his theory. He works on the lower end and we work on the upper end. Any break in the line of ductless glands means trouble. Admitting for the sake of argument that that break is produced by an infection in the intestine, which, in turn, produces a biologic change which acts on the thyroid. Having then started up the thyroid action, which is like a secondary fire, that fire must be put out. If Sir Arbuthnot Lane is correct, we can work on the thing stirred up by the action of the microbe in the intestine that has produced the secondary effect on the thyroid because otherwise your fire goes on. In the exophthalmic the burning is excessive, not only the protein, but the patients are eating twice as much as other people, and getting poor by burning up their store of protein and fat. That is what happens through the thyroid, and I believe today, from what knowledge we have and our ability to deal with it, it is best dealt with by acting on the gland itself, even though it is considered as a secondary agent.

Dr. Donald Guthrie, Sayre, Pa.: I am glad to hear Dr. Sloan say that in former days we attached too much importance to injury to the recurrent laryngeal nerve. However, the anatomic relations of the nerve to the capsule and lower pole of the gland should be emphasized. In the dissections we have made we have found the nerve winding in and out between the branches of the inferior thyroid artery. Trauma in the region of the nerve and trauma to the trachea itself should be avoided. The recurrent laryngeal nerve sends fibers to the trachea itself and loss of voice following trauma to the trachea may be explained in this way. I am convinced the less we traumatize the trachea the less disturbance of speech we will find after operation. It should also be remembered that occasionally a syphilitic patient will lose the voice following operation, but that the voice will be restored with proper antisyphilitic treatment.

Dr. Edward G. Jones, Atlanta, Ga.: I merely reply to the inquiry respecting the Goetsch test. If a person has overactivity of the thyroid, and 0.5 c.c. of the standard 1:1,000 solution of epinephrin be injected, she will exhibit a much more marked reaction than will a normal person. Blood pressure, respiration, etc., having been noted when the patient is tranquil before the injection is made, it will be discovered that as compared with these preliminary readings there will be an elevation of blood pressure or pulse, or both, of ten points or more after the injection. The objective and subjective findings, such as increased tremor, coldness of hands and feet, throbbing, some apprehension, etc., are brought out quite perceptibly. The degree to which these phenomena attain will be governed by the degree of hyperthyroidism. Taken altogether, the injection of epinephrin will induce an exacerbation of a typical real hyperthyroid syndrome, the attack thus precipitated lasting perhaps an hour and a half.

HYPOPHYSIAL TUMORS THROUGH THE INTRADURAL APPROACH *

A. W. ADSON, M.D.
ROCHESTER, MINN.

My attention was first called to the intradural approach for the removal of hypophysial tumors by Dr. G. H. Heuer of Johns Hopkins Hospital. Dr. Heuer showed me two patients on whom he had operated by this method. I shall not discuss the surgical indications of hypophysial disorders; but in the group of cases in which there were visual disturbances, the improvement following operation has been so marked that we feel that special attention should be called to the surgical treatment. Six patients have been operated on, and drawings are presented which show the tumors in place before their removal. The physiologic and surgical indications of hypophysial tumors have been described by Cushing.[1] Frazier[2] has called attention to three surgical indications: (1) subtemporal decompression for the relief of pain; (2) decompression of the sella turcica or removal of the tumor for visual disturbances, and (3) operation on the pituitary body for amelioration of hyperpituitarism.

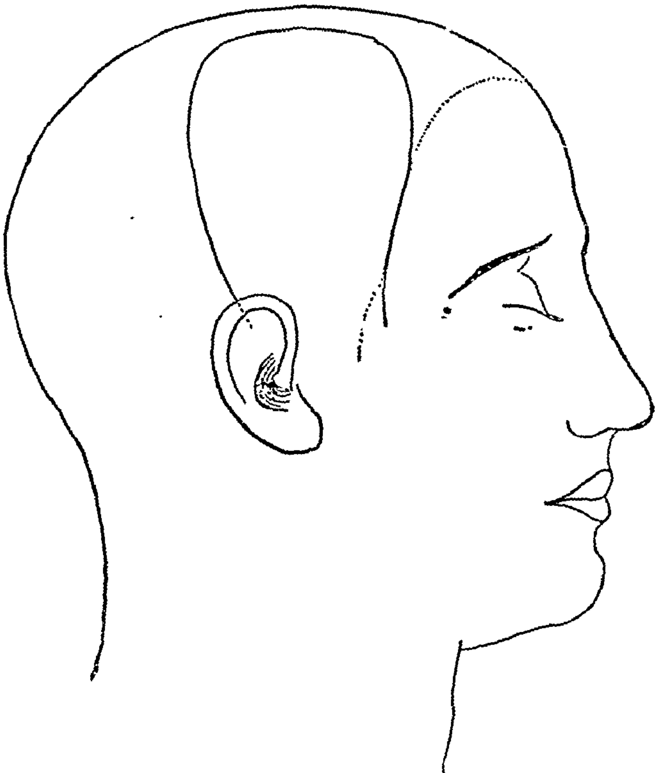

Fig. 1.—Osteoplastic flap previous to exposure of frontal lobe and pituitary gland.

The first successful hypophysial operation was performed by Schloffer[3] in 1907 through the extracranial transsphenoidal approach. Several modifications of this technic have been made by Hirsch,[3] von Eiselsberg,[4] Cushing,[1] Kanavel[5] and others. In 1893, the subtemporal operation by the intracranial method was done by Thus,[6] Caton and Paul.[3] Krause,[3] in 1905, and Hartley and Kiliani[3] in 1904, attempted to expose the hypophysis by bilateral osteoplastic frontal resection and ligation of the longitudinal sinus. Kiliani suggested opening the dura as soon as the osteoplastic flap was removed. Frazier,[7] in 1913, described the transfrontal approach, which differed from the technic of McArthur[8] in that the osteoplastic flap was turned in conjunction with the resection of the roof of the orbit. In both the McArthur and the Frazier operations the dura was raised with the frontal lobe and not opened until the anterior clinoid process was approached.

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* From the Mayo Clinic.

[1] Cushing, Harvey: The Pituitary Body and Its Disorders, Philadelphia, J. B. Lippincott Company, 1910.

[2] Frazier, C. H.: Lesions of the Hypophysis from the Viewpoint of the Surgeon, Surg., Gynec. and Obst., 1913, **17**, 724-736.

[3] Quoted by Frazier, C. H.: Ann. Surg., 1913, **57**, 145-150.

[4] Quoted by Frazier (Footnote 2).

[5] Kanavel, A. B.: Cysts of the Hypophysis, Surg., Gynec. and Obst., 1918, **26**, 61-70.

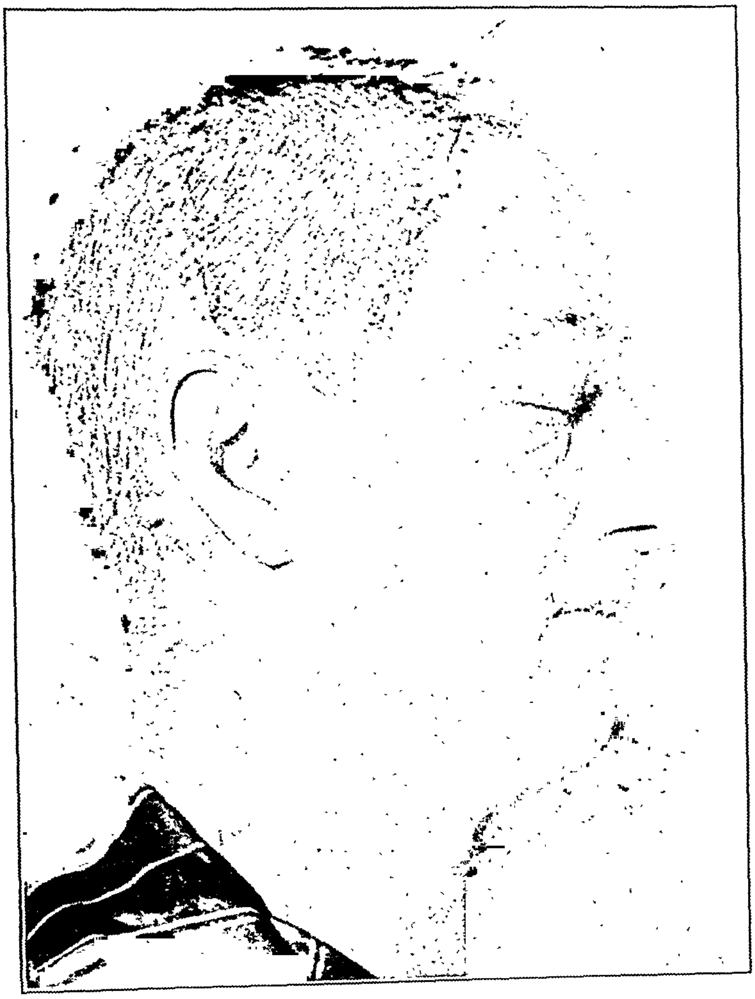
Fig. 2 (Case 4).—Operative scar, eight days after operation, showing its relation to the hair line. No paralysis of the occipitofrontalis muscle.

TECHNIC

The technic herein described is of an intradural approach after an osteoplastic flap has been turned from the right frontoparietal region. The dura is opened widely to permit the exposure of the frontal lobe, which is protected with cotton and rubber tissue. The lobe is then elevated gently until the optic commissure and the hypophysis are exposed.

The patient is anesthetized by the inhalation drop method and placed on the operating table at an angle of 80 degrees with the horizontal plane. The head is held back in a position to permit the natural gravitation of the frontal lobe from the anterior cranial fossa. The anterior limb of the osteoplastic flap corresponds to the margin of the hair line, and this affords three-fourths inch of space posterior to the external angular process of the orbit, thus preventing injury to the motor branch supplying the frontal division of the occipitofrontalis and guarding against any paralysis of the muscle. The incision is carried upward to the median line three-fourths inch from the longitudinal sinus; it is then extended backward for a distance of 3½ inches and downward over the parietal eminence to a position above the middle portion of the ear (Figs. 1 and 2).

The bleeding in the flap is controlled by the application of a pedicle clamp[9] at the base of the flap (Fig. 3). The bleeding in the scalp, aside from that in the flap, is controlled by the application of forceps to the aponeurosis (galea) one-half inch apart and turned outward to compress gently the margin of the skin. The forceps are tied in groups and left in position during the operation (Fig. 3). The bone flap is turned by the use of the Hudson drill (the de vilbiss) on the sides and the gigli saw on the upper margin. This produces the beveled effect which assists in holding the flap in place as a lid.

After the dura has been exposed, a flap is made to permit the exposure of the frontal lobe, but it is made at right angles to the osteoplastic flap, which has been broken in the region of the temporal bone and turned downward. The dural flap is permitted to remain in position and to cover the cortex of the brain, and the frontal margin is raised by tension sutures of silk. The brain substance, as well as the exposed dural surface, is covered with warm, moist cotton, which, in turn, is covered by rubber tissue (Fig. 5).

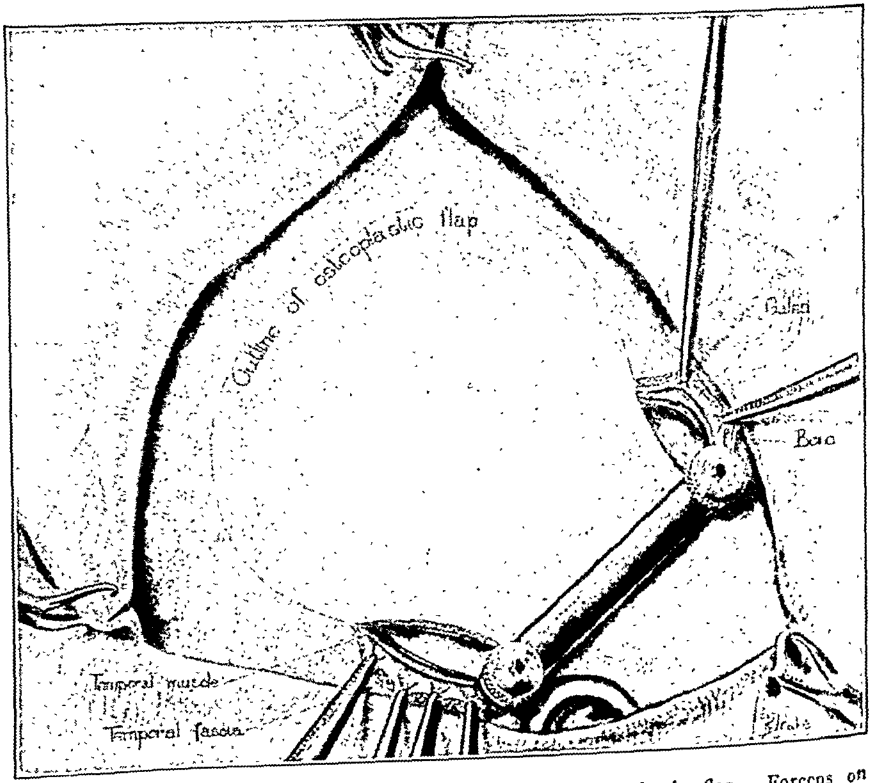

Fig. 3.—Pedicle clamp to control bleeding in the osteoplastic flap. Forceps on the aponeurosis to control bleeding along outer margin of incision.

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[6] Quoted by Cushing, Harvey: The Pituitary Body and Its Disorders, p 295.

[7] Frazier, C. H.: An Approach to the Hypophysis Through the Anterior Cranial Fossae, Ann. Surg., 1913, **57**, 145-150.

[8] McArthur, L. L.: An Aseptic Surgical Access to the Pituitary Body and Its Neighborhood, The Journal A. M. A., June 29, 1912, pp. 2009-2011.

[9] I am indebted to Dr. Heuer for the method of applying the pedicle clamp.

In the elevation of the frontal lobe, rubber tissue strips are placed gently over the convolutions in a shingle effect in order to give a uniform pressure over the cortex as it is elevated by the retractor[10] (Figs. 5 and 6). There is very little difficulty with bleeding during this process; occasionally there is a small venous communication between the cortex and the dura. With gentle manipulation the optic commissure and the hypophysial body are readily exposed. Important landmarks during the elevation of the frontal lobe are the anterior cranial fossa, the margin of the lesser wing of the sphenoid to the anterior clinoid process, the right optic nerve, and the internal carotid artery. The procedure is then carried on mesially until the commissure as well as the left optic nerve and the hypophysial body are brought into view (Fig. 7). A gentle dissection of the tumor is then begun with blunt hooks to free it from the commissure, nerves and surrounding tissue. Usually the tumor is definitely encapsulated, and if freed from the constricting bands, it is readily elevated. In case there is slight bleeding, it is controlled by very small pledgets of cotton guarded by long strings of silk to prevent their loss. As the tumor is freed from the surrounding structures (Fig. 8), a septile snare is applied to its pedicle, which is gradually constricted to control the bleeding and to remove the tumor mass (Fig. 9). The further removal of the pituitary body from the sella turcica may then be continued.

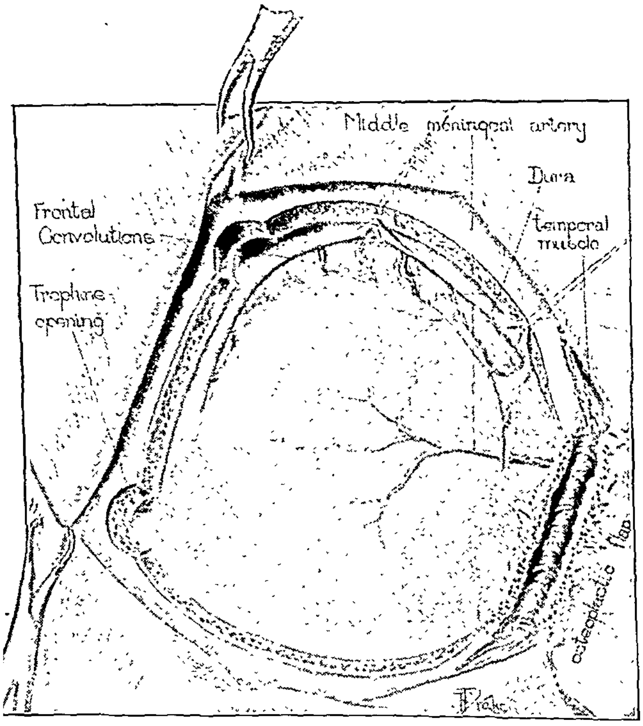

Fig. 4.—Exposure of the dura, which is divided along its anterior margin to permit the exposure of the frontal lobe.

REPORT OF CASES

Case 1. (201188).—Mrs. J. J. L., a housewife, aged 50, examined, July 18, 1917, for the past fifteen months had noticed a gradual failing in vision, particularly a narrowing of the temporal fields. She was unable to see approaching objects from the side. She also complained of marked dyspnea. The general examination was negative except for hypertension. The systolic blood pressure was 210, the diastolic 114. The urine, blood and Wassermann tests were negative. The combined functional phenolsulphonephthalein test was 60 per cent. in two hours. The roentgen examination of the head revealed the sella to be moderately enlarged. The nerve heads of the eyes were slightly pale, the physiologic cup deep and broad, and the arteries small. The tension by the Schiötz tonometer was 18 in both eyes. The left temporal field presented an absolute hemianopsia with constriction on the nasal side. In the right temporal field there was hemianopsia except for a slight vision on the lower temporal margin. The nasal field was quite normal. Operation was performed, Aug. 22, 1917. On exposure of the hypo-

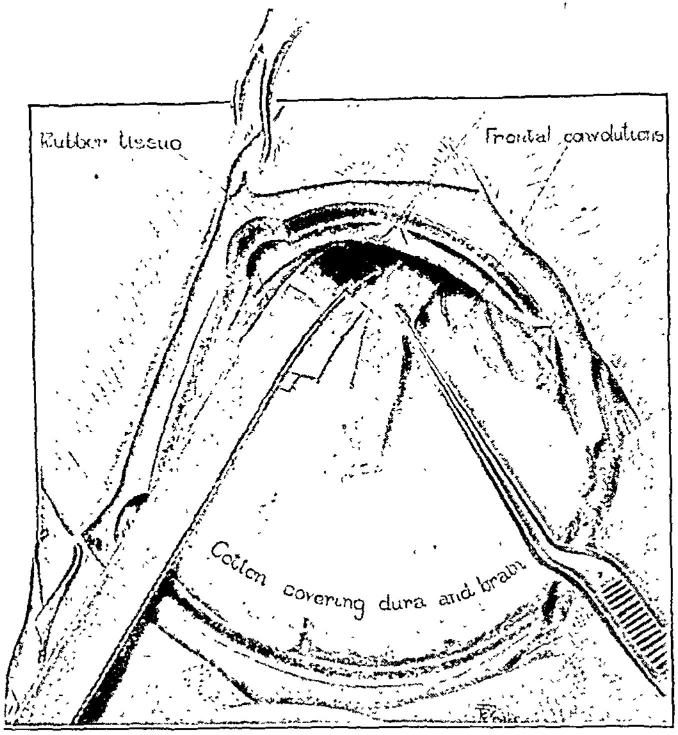

Fig. 5.—Elevation of the frontal lobe with the insertion of rubber tissue strips, which are applied as a protection to the brain cortex.

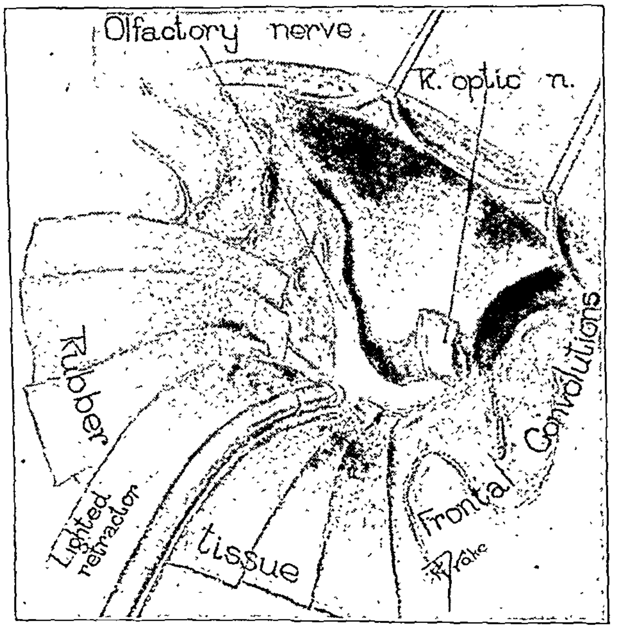

Fig. 6.—Elevation of frontal lobe, exposing right olfactory nerve and right optic nerve prior to exposure of pituitary tumor.

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[10] This retractor is arranged with a small laryngoscopic light which illuminates the region of the optic commissure much better than a reflector or head light. The retractor is similar to the one used by Frazier. We have also made a curet forceps to scoop out the cellular tissue from the sella.

physial region, a pituitary tumor about an inch in diameter, soft but well encapsulated and bluish gray in appearance, was found. The tumor was situated in the sella and seemed to rise under the left optic nerve. On removal of the mass some erosion was noted in the right margin of the sella. About one fourth of the normal gland was left in the sella. The patient's postoperative convalescence was uneventful. Eight fields were made from the time of operation until September 29, when there was a complete return of normal object as well as color fields. In a letter from the patient three months after the operation, it was stated that vision was still perfectly normal (Figs. 7 and 8).

Case 2 (207683).—Mrs. A. E. S., a housewife, aged 28, examined, Oct. 11, 1917, complained chiefly of blindness, most noticeable in the left eye, and with a gradual diminution of vision on the sides. This began twelve months previous to examination. Three and one-half months previously there had been rapid loss of vision in the left eye. Four months previous to her examination, the menstrual flow ceased and did not return. There was no pregnancy. She complained more or less of marked drowsiness, and slept much of the time. She had gained in weight in the last four months, and her hands and feet had become slightly enlarged so that she was obliged to increase the size of gloves and shoes. The systolic blood pressure was 100, the diastolic 64. The urine, blood and Wassermann tests, and the roentgenogram of the sella were negative. The vision in the right eye was 7/200; there was no vision in the left eye. The right nerve head was pale on the nasal side; the margin was well defined. The fields were absent on the left, and there was absolute temporal hemianopsia on the right. Operation was performed, Oct. 1, 1917. On exposure of the hypophysial body, a dark red nodule, about three-fourths inch in diameter and completely encapsulated, was found situated anterior to the optic commissure, but beneath it and elevating the left optic nerve as well as the commissure. The right optic nerve was one and one-half times the normal size, and edematous. The tumor was very adherent to the sella on the anterior side. A small amount of the gland, about one-fourth the normal, was left in the sella. Immediately following the operation, the patient developed a very high temperature (106) which continued until death, at the end of thirty hours. At necropsy, when the osteoplastic flap was reflected, a considerable amount of soft, dark, clotted blood adherent to its under surface was found. The leptomeninges were clear. There was no accumulation of blood inside the dura except a slightly blood-tinged serum down in the region of the sella. There was a marked general edema of the brain with a free flow of cerebral fluid from the right ventricle, which had been tapped during the operation to relieve the pressure and to permit a better exposure (Fig. 10 *c*).

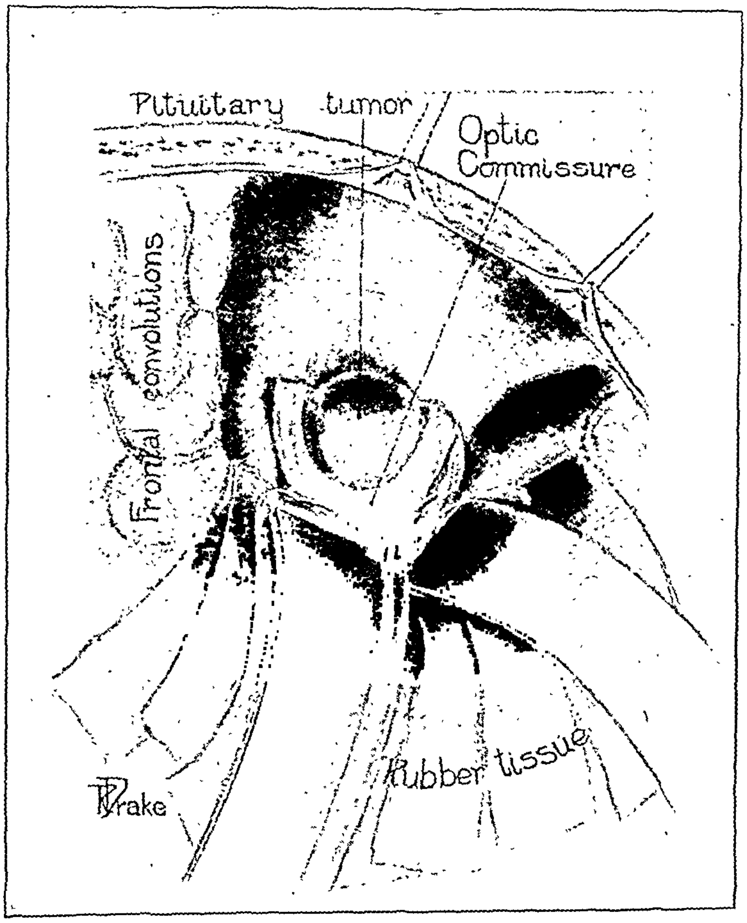

Fig. 7 (Case 1).—Exposure of pituitary tumor, with relation to optic nerves and commissure with a bitemporal hemianopsia, which is more marked in the left eye.

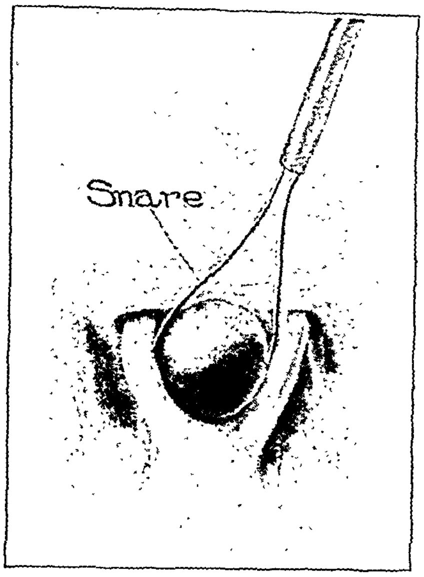

Fig. 8.—Placing the snare about the pedicle of the pituitary tumor.

Case 3 (207279).—J. L. W., a cashier, aged 42, examined, Sept. 7, 1917, first noticed ten years previously that he had lost vision in the right eye. One year previously, vision began to fail in the left eye, incapacitating him for work for the last eight months. The systolic blood pressure was 159, the diastolic 101. The blood, urine and Wassermann tests and the roentgen examination of the sella were negative. The right nerve head was perfectly white, and there was an absence of visual field but no other fundus change. The nerve head of the left eye was markedly pale along the nasal side. The vision was 3/200. There was blindness of the right eye and a constricted left temporal field, about one third of the normal. No field whatever could be obtained with a candle on the right side. On operation, Oct. 10, 1917, a large, grayish red tumor about an inch in diameter was exposed under the right optic nerve and optic commissure, making it necessary to dissect the fibers of the nerve out of the pituitary mass. A very small portion of the pituitary body, about one fourth of a normal gland, was left in the sella. There was very rapid progress and a return of the left temporal field with light and perception of moving objects in the right eye at the end of three weeks. When the patient reported for examination three months later, there was marked improvement in the left eye, and he was able to see objects and to read large letters with the right eye, showing a decided improvement in the upper four fifths of the nasal field as well as the outer, upper quadrant of the temporal field. The blue and red color fields had also partially returned (Fig. 10 *a*).

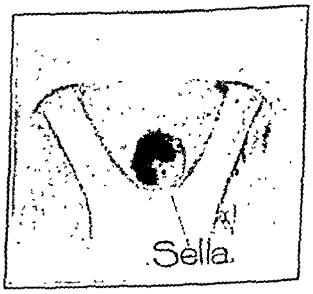

Fig. 9.—Appearance of sella after tumor has been removed.

Case 4 (210605).—Mrs. T. E. B., a housewife, aged 38, examined, Oct. 12, 1917, complained chiefly of eye trouble and abnormal enlargement of the feet, hands and face. The patient had had amenorrhea since the birth of her last child, eight years previously. The visual disturbances dated back five years, the time of onset of the present acromegalic syndrome. The trouble had been progressive with visual disturbances in the left eye, for the year preceding examination. She had been unable to see sufficiently to sew or to do fine work for several weeks. The general examination presented a typical picture of acromegalia. The systolic blood pressure was 110, the diastolic 80. The urine, blood and Wassermann tests were negative. The roentgen examination of the head revealed a markedly enlarged sella. The field in the right eye was quite normal as to object and color; the left temporal field, as well as the margin of the left nasal field, were markedly constricted as to moving objects, and there was a complete absence of color fields. The fundus of each eye was negative. At operation, Oct. 25, 1917, a very soft, grayish pituitary tumor about one-half inch in diameter was found underneath the commissure and pushing upward slightly toward the left optic nerve. The tumor was completely removed and the sella curetted, leaving no possible trace of pituitary substance. The patient was immediately put on a pituitary extract, continued in alternating periods of ten days. Her recovery was rapid. There was a return of the color fields in the left eye, and considerable change in the tissue of the face, hands and feet at the end of three weeks. The mentality, which was very slow previous to operation, had greatly improved. The patient reported by letter about two months after operation, and stated that vision remained clear, that she was feeling better than she had for years, and that the swelling of the hands and feet was gradually diminishing (Fig. 10 *b*).

Case 5 (45560).—Miss M. L., aged 36, examined Oct. 23, 1917, two and one-half years before had had severe pain in the right side of the head, associated with a failing vision in the right eye which progressed until it was complete one year previously. Within the last year, vision in the left eye had almost completely failed. At about the time the visual disturbances appeared, the menstrual flow stopped abruptly. There had been occasional vomiting, with perversion of taste and smell. The systolic blood pressure was 104, the diastolic 78. Urine, blood and Wassermann tests were negative. Roentgen examination revealed the sella apparently greatly enlarged, and erosion of the posterior clinoid process. There was pallor of the right optic disk with complete blindness, an absolute temporal hemianopsia of the left eye, pallor of the nasal side of the optic disk, and a low grade of optic neuritis of the whole left nerve head. There was no swelling of either nerve head. A diagnosis was made of a basal tumor either coming from, or encroaching on, the pituitary gland. An exploratory operation through this pituitary route was advised and performed Nov. 1, 1917. The hypophysial mass, which was situated under the right frontal lobe and very adherent to it, was exposed, but it was impossible to get below the tumor. The optic nerves could be seen, but only a partial removal of the tumor was accomplished because of the hemorrhagic condition. The postoperative convalescence was uneventful, but no benefit was derived from the operation except the relief from pain, which was obtained from the large decompression made at the base of the osteoplastic flap (Fig. 10 *c*).

Case 6 (219123).—D. A., a girl, aged 9 years, examined, Jan. 1, 1918, for the past four years had had diabetes insipidus without glycosuria. Visual disturbance began three months previously with marked and progressive disturbance in the left eye. At the time of examination there was almost complete loss of vision in the left eye, and shortly afterward a marked loss of vision on the temporal side in the right eye. There had been nausea, vomiting, and mild headaches over the left eye. The child appeared exceptionally bright, and was well nourished. A twenty-four hour specimen of urine, 1,800 c.c., showed alkaline reaction, specific gravity 1.005, and a slight trace of albumin. The blood and Wassermann tests were negative. Roentgenoscopy revealed enlargement of the sella, and a thinness of the posterior clinoid process and base. The left temporal field showed very slight light perception. The nasal field presented a marked constriction with distortion. The left nerve head was swollen to the extent of 2 diopters; the veins were tortuous. An absolute temporal hemianopsia was present in the right eye, and in the fundus were a small disk, hazy, tortuous veins, and hyperemia of the nerve head. There were no hemorrhages in either eye. Operation was performed, Jan. 24, 1918, and a pituitary tumor about an inch in diameter was found underneath and bulging up over the optic commissure. It had originated from the pituitary gland and was extremely adherent to all the surrounding structures, with, however, a definite line of demarcation. In two places the growth had broken through the capsule and had become adherent to the brain substance. The tumor was removed with considerable difficulty, since it was impossible to get all of it from underneath the commissure. Because of the increased pressure on the brain, it became necessary to drain the lateral ventricle. There was marked progress in the return of the visual fields; the patient could read with the left eye at the end of two weeks. Improvement of the right temporal field was slower than in the usual case. Eight weeks after the operation the patient was doing well, but the visual improvement was still slow (Fig. 10 *d*).

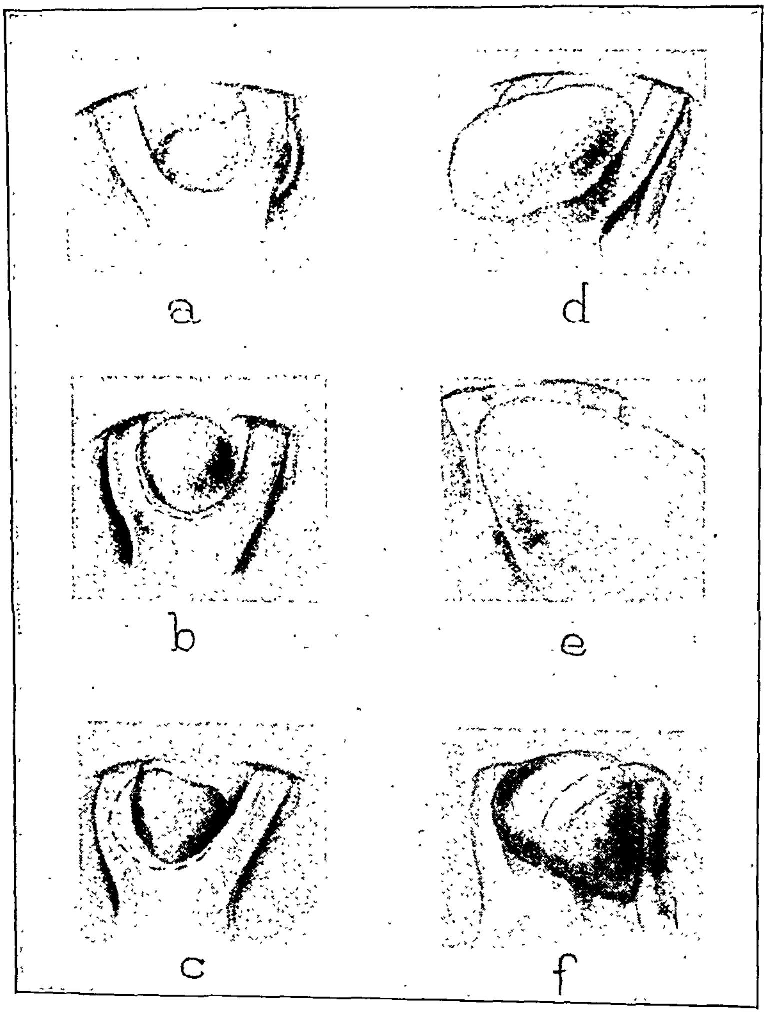

Fig. 10.—Exposure of pituitary tumor, with its relation to the optic nerves and commissure producing: *a* (Case 3), total blindness of the right eye with a left temporal hemianopsia; *b* (Case 4), contracted left temporal field associated with typical symptoms of acromegalia; *c* (Case 2), total blindness of left eye and hemianopsia of right eye; *d* (Case 6), total blindness in left eye with temporal hemianopsia of right eye; *e* (Case 5), total blindness in right eye with a temporal hemianopsia in left eye, and *f* (Case 7), exposure of an intracranial projection of nasopharyngeal sarcoma producing total blindness in right eye and temporal hemianopsia in left eye.

A case of nasopharyngeal tumor with intracranial projection (Fig. 10 *f*) producing visual disturbance is presented as a means of comparison.

Case 7 (216363).—F. A. A., a man, aged 33, examined, Dec. 1, 1917, three years previously had noticed partial blindness in the right eye, and two and one-half years later vision completely failed. There had been no other disturbance since that time until three weeks previous to examination, when the patient complained of vertigo and headache. The systolic blood pressure was 112, the diastolic 100. The urine and Wassermann tests were negative. A roentgen examination of the sella revealed complete erosion with destruction of the sphenoid body and cells. There was complete blindness in the right eye, absolute temporal hemianopsia in the left, a marked right optic atrophy and hyperemia of the left nerve head, but no swelling and no other fundus changes.

SUMMARY

In two of the group of six cases, the patients presented very definite bitemporal hemianopsia, with more or less complete loss of vision in the left eye. One patient had a complete loss of vision in the right eye for a period of ten years, and a left temporal hemianopsia; one presented a typical acromegalic syndrome with a temporal color hemianopsia and constricted object field; one had bitemporal hemianopsia with more or less distorted fields in the left eye, and one had blindness in the right eye with definite neighborhood symptoms producing a frontal lobe syndrome of pressure and localization, involving the uncinate gyrus. Postoperative convalescence was uneventful and rapid in all but one case, in which the patient died on the second day. In two cases there was complete restoration of vision, in two marked improvement in vision, and in one a relief from headache. In the case of blindness in the right eye which was complete for ten years, the patient has begun to have a return of vision. The patient with acromegaly is having metabolic changes. In five cases there has been definite improvement. In one, no visual improvement, but relief from pain was obtained.

The particular advantages of the operation are: 1. Its approach presents a dry field, free from infection and in which it is comparatively easy to expose the optic commissure and the tumor. 2. The exposure permits the dissection of the tumor from the optic nerves and the commissure, and the removal of all or any portion of the tumor and pituitary body that is desired. 3. Trauma of the commissure and nerves is prevented, as the sponging is done against the floor of the sella instead of working upward against the commissure and nerve peduncles. So far as the operative risk is concerned, it is no greater than in craniotomies on the frontal lobe, depending a great deal, no doubt, on the experience of the operator.

SPOROTRICHOSIS RESEMBLING TUBERCULOSIS CUTIS

REPORT OF A CASE [*]

J. S. EISENSTAEDT, M.D.
Instructor in the Department of Dermatology, Northwestern University Medical School
CHICAGO

A case of sporotrichosis occurring in a robust young man who appeared before the Medical Advisory Board at Wesley Memorial Hospital was referred to me for diagnosis.

REPORT OF CASE

History.—The patient stated that before the appearance of any cutaneous lesions he was operated on for supposed tuberculous glands of the neck. He stated that a small nodule appeared on the flexor surface of his right wrist about twenty-seven months previously. The nodule was about the size of a pea when first noticed and was painless. It gradually enlarged and became harder in consistency. It finally reached a maximum size of that of a hazelnut, then gradually became softer and eventually suppurated, discharging a viscid bloody pus, leaving a shallow ulceration of the skin which later apparently healed and then broke down and at the present time is still active. Coincident with the development of this primary lesion other lesions developed higher up on the right arm to the shoulder without any definite systematic arrangement or occurrence. Lesions of the same character and running a similar course developed on the left arm and now again on the right and left leg. Some of the latter have healed. There has been no deterioration in the patient's general health. There was no febrile reaction and no other symptoms except some pain on pressure over the lesions.

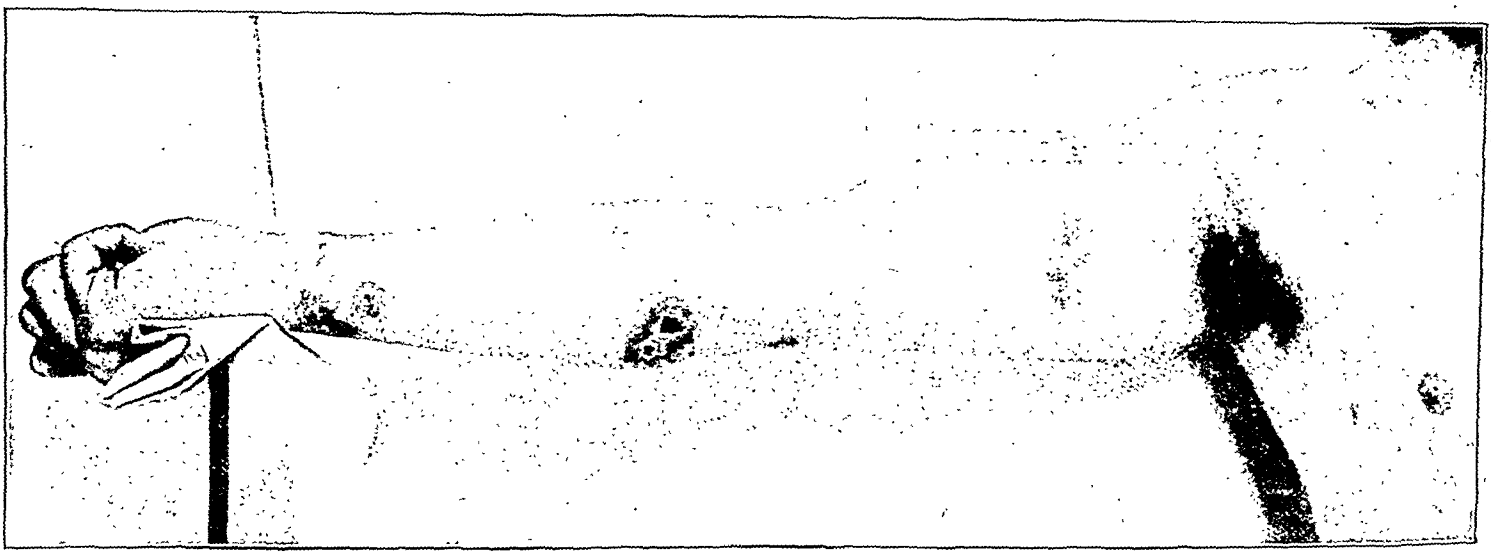

Fig. 1.—Inner aspect of right arm showing lesions of sporotrichosis in various stages of development.

Examination.—The patient, aged 21, was a healthy, robust youth. On the right arm there were several lesions varying in size from a quarter dollar to larger than a 50-cent piece. The lesions were in various stages and the most recent had been present about ten weeks. For the most part the lesions were covered with a dark yellow to blackish crust, which when removed left a superficial ulcer somewhat smaller than the crust removed. The ulcers were sharply defined, irregular in outline, with slightly undermined livid red walls. The bases presented several pale, elevated granulations and an occasional yellow miliary abscess was noted. On the inner surface of the right arm at the level of the juncture of the middle and upper thirds of the humerus was a thin, pigmented, movable scar representing the site of a former lesion.

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[*] Read before the Section on Dermatology at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

The lesions were surrounded by a pigmented zone and were slightly, if at all, infiltrated. They did not follow anatomically nor with any definite sequence the course of the lymphatics, nor were the lymph glands markedly enlarged.

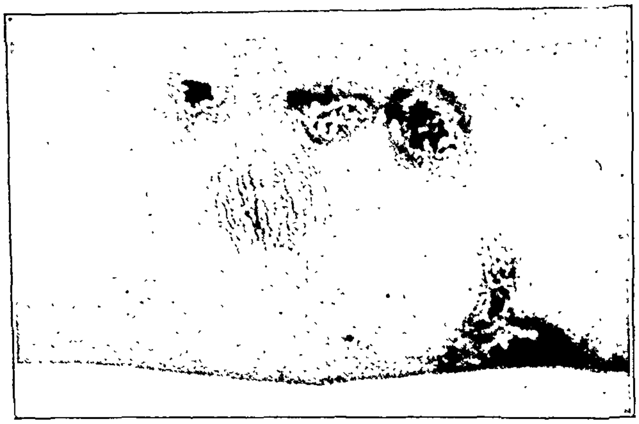

Fig. 2.—Posterior aspect of left arm showing heavily crusted lesions grouped about elbow joint.

Lesions of the same character were present on the left arm and were especially grouped about the elbow joint.

At the time of our second examination several of the lesions were in process of softening, the skin above was blue-red and the consistency of the nodule itself was elastic. On the right leg above the ankle joint was a scar similar to that described on the right arm. Another was present on the external surface of the thigh. These scars were thin, movable and pigmented. The general physical examination of the patient was negative. The temperature was 98.6 F., pulse 72, leukocytes 8,600, and hemoglobin 90 per cent.

Bacteriologic Examination. — Direct smear from the lesion, a miliary abscess having been opened, revealed leukocytes but no fungi or bacteria. Neither mycelia nor spores were present. A plain bouillon tube was inoculated as well as an agar slant, there being no maltous medium at hand at the moment. Growth on these mediums began on the sixth to seventh day and showed small, grayish-white colonies with smooth, moist surfaces. The colonies were surrounded by a narrow grayish zone of ray-like hairy projections. As the colonies grew in size the center became sunken and from it emanated many furrows toward the periphery. The areola became wider and the area of the colony much greater. Later the whole gradually assumed a convoluted appearance not unlike that of the brain. In bouillon, colonies appeared as minute puffballs. Subcultures on Sabouraud's maltose agar very promptly developed a marked pigmentation. Also subsequent subcultures were pigmented from the time of inoculation. As is characteristic, the subcultures all grew very rapidly and especially so on a favorable medium, like maltose agar. The original culture on plain agar was still unpigmented. A hanging-drop made on the eighth day from the bouillon culture showed beautifully branching septate mycelia with pear-shaped spores attached. The appearance of the cultures in every respect was identical with sporotrichon, as described by Schenck, Hektoen, and Hyde and Davis. The mycelia were from 20 to 40 microns long. The protoplasm was granular and stained by the Gram method. The pear-shaped spores present between the interlacings of the mycelial filaments were from 5 to 6 microns long and from 3 to 4 microns in width and were numerous. A white rat was inoculated intraperitoneally.

Biopsy.—A microscopic section made from one of the lesions revealed nothing distinctly characteristic. The histology was that of an infectious granuloma and showed many plasma cells. Giant, epitheloid and round cells were present in the usual arrangement found in other infectious granulomas. Microscopic abscesses were the only lesion which would suggest a diagnosis of sporotrichosis from the microscopic section alone. No necrotic areas were found. The blood vessels were very numerous in the lesion. Serum from the patient reacted positively with antigen from this and the last case seen here in Chicago. For the report on the complement fixation, I am endebted to Dr. J. J. Moore.

Treatment.—The patient was promptly put on increasing doses of sodium iodid, which unfortunately caused him greater annoyance than the disease. Following the use of compound solution of cresol locally, as recommended by Ravogli, as well as copious moist dressings of mercuric chlorid, 1 : 5,000, solution, some improvement was noted.

DIAGNOSTIC CONSIDERATIONS

The case in question, I believe, would fall under the heading of disseminated ulcerative sporotrichosis, which is undoubtedly of hematogenous character and which frequently, as in this case, is not associated with any trauma which the patient recalls. In this type of disease there is no characteristic *chancre sporotrichosique* present and the lesions do not follow the lymphatic channels with regularity. The lesions in the case under consideration resembled most those of tuberculosis of the hypoderm as recently described, and also looked very much like ecthyma. The tonsils or elsewhere in the pharynx seems to have been, in

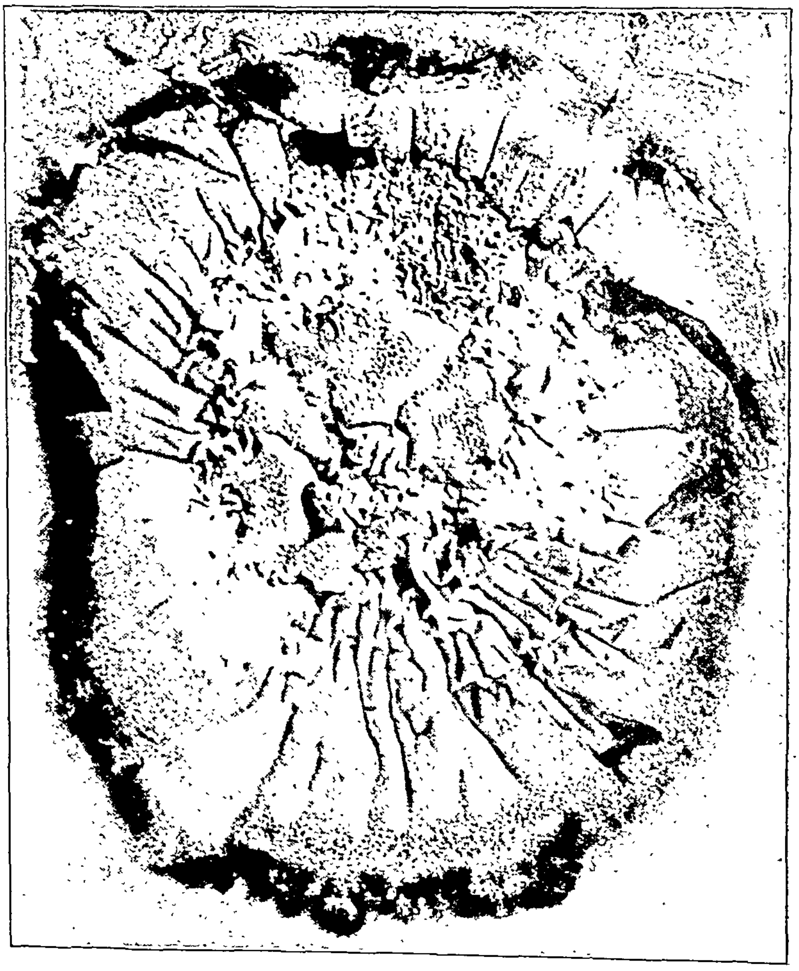

Fig. 3.—Massive culture of sporotrichosis grown on Sabouraud's medium.

this instance, the possible site of entrance for the infection.

The important dignostic features to be borne in mind are that sporotrichosis when affecting the cutaneous surface may appear in a variety of forms and that the so-called localized type in which the lesions appear along the course of the lymphatics on the extremity which carries the initial chancre is only one of the forms. Sporotrichosis, besides causing the variety described in this brief paper and the localized type, may cause a disseminated nonulcerative form and likewise combinations of the three. Some cases begin as the localized form and progress, by way of the lymphatics, for a considerable period of time and then develop lesions at remote regions when the organism finds its way into the blood stream.

One should consider seriously sporotrichosis in the differential diagnosis of lesions of gummatous-like or nodular character which are indolent, painless, and which persist over a considerable period of time in spite of the ordinary treatment directed against the usual types of bacterial infections. Especially so, when the general condition of the patient does not seem to be reduced.

The disease occurs particularly in people living in rural districts and among farmers. It has been noted equally as frequently in association with trauma as when no such association was noticed. It has been observed at all ages and more especially in men. The bacteriologic diagnosis is so simple and usually so definite that excuses for faulty diagnoses can hardly be accepted, because even when laboratory facilities are lacking, the fungus grows readily on potato. I firmly believe that many cases have gone undiagnosed on account of the neglect of this simple bacteriologic technic.

25 East Washington Street.

ABSTRACT OF DISCUSSION

Dr. Frederick G. Harris, Chicago: I saw this patient, but I did not think it was a case of sporotrichosis. Tuberculous glands had been removed previously and the skin lesions looked like tuberculosis of the hypoderm, as described by Wende, hence I made that diagnosis.

Dr. K. A. Zurawski, Chicago: I have seen quite a few cases of this type, both the ulcerative cases and the cases of chancre type. Many of the cases have occurred among workers in the gardens around Chicago; one occurred in a baker. The cases were very easily treated, but I used cyanid of mercury instead of chlorid locally. The iodids internally usually clean up the lesion. One should never forget that sporotrichosis is a systemic disease in many cases. In one of my cases sporotrichosis of the lung has developed. It is a good plan to inquire into the history, and if there is any cough, examine the sputum. As far as the organism itself is concerned, about seven varieties of definite sporothrix are recognized at present. I have met but one that I am sure of, that of the de Beurman type. I have seen one of the type of Doro, of which the slide was brought to me. I did not see the patient.

Dr. Richard L. Sutton, Kansas City: Our French brethren have an unfortunate habit of dividing and subdividing these pathologic conditions and then winding up by attaching some scientist's name to each particular one of the supposed forty-seven different varieties. Meyer and Aird believe that the *Sporothrix schenckii* is identical with the *Sporothrix beurmanni* and suggest for the American strains of sporotrichia the designation of "*Sporothrix schenckii-beurmanni.*" With regard to the treatment, some of the cases have a tendency to become pulmonary, or even systemic, and it is very unwise to expose the patient to so grave a generalized infection. Consequently, I should advise large doses of iodin, given intramuscularly or subcutaneously, in this case reported by Dr. Eisenstaedt.

Dr. Augustus Ravogli, Cincinnati: I had a case of sporotrichosis which I published some time ago under the title of "Sporotrichosis of Tuberculoid Type." The patient was a young woman who was working in a grocery store, labeling boxes. She was treated for ulcerated gumma. When she came to me the lesion was a gangrenous patch on the flexor surface of the elbow joint. After continuous bathing with mercuric chlorid it improved. I found the characteristic mycelium and the ovoid spores. I made a culture and obtained the *Sporothrix schenckii.* The appearance was entirely different from the ordinary cases of chancre sporotrichosis with the little black abscesses. This was in a mass, and for this reaon I made the diagnosis of a sporotrichosis of tuberculoid type. The girl inoculated her forehead from the lesion on her forearm, but fortunately this healed in a short time. I used large doses of potassium iodid internally, together with an iron tonic, and locally applications of liquor cresolis compositus in full strength. Every day the area was bathed with mercuric chlorid, 1:2,000, and dressed with an ichthyol ointment. I secured a perfect recovery.

Dr. J. S. Eisenstaedt, Chicago: Since the paper was written the patient has received intramuscular injections of a 25 per cent. iodin solution.

Clinical Notes, Suggestions, and New Instruments

RUPTURE OF CESAREAN SCAR DURING PREGNANCY: REPORT OF A CASE

Carl R. Howson, M.D., Redlands, Calif.

The patient was a Mexican woman, aged 24, and had been pregnant seven months. Nine months previously she had been delivered by cesarean section, and made an uneventful recovery, with the exception of a slight superficial infection in the abdominal wound.

I was called to see her on a Saturday evening. About 2 p. m. the previous day, while at stool, she had been seized with pain in the abdomen of such severity that she was unable to move. Her physician was called, and finding her apparently in good condition she was put to bed and a mild anodyne administered. About midnight the pain recurred in paroxysms of great severity, and her physician was again sent for. He advised immediate removal to a hospital for laparotomy, but the advice was declined. She was catheterized at this time. The next forenoon he called, and again urged her removal to the hospital, but to no avail.

On my arrival at 9 p. m. that evening I found the patient in a semirecumbent position, bright, and feeling little pain or weakness; her temperature was 98.6; the pulse was 130 and of good quality. She had passed no urine since midnight, and had felt no fetal movement during the day. On the abdomen was a large, broad and slightly irregular cesarean scar. Distention and tenderness were such that no information could be obtained as to internal conditions beyond the absence of the fetal heart sounds. Immediate removal to the hospital for laparotomy was advised, and finally agreed to, and the case then passed out of my hands.

On arrival at the hospital shortly after midnight her temperature was 98.6 and her pulse 110. She was catheterized, and 300 c.c. of urine with a trace of albumin were withdrawn. The house physician disagreed with the diagnosis that had been made, considering the case one of toxemia in which conservative treatment was indicated, and accordingly instituted. Her condition remained unchanged that day, and the following day, Monday, a diagnosis of dead fetus was made. She was anesthetized to permit of the introductioon of a colpeurynter, but became so cyanotic that the anesthetic had to be discontinued and the bag introduced without it. As no pains set in during the ensuing twenty-four hours, an attempt was made to dilate manually under anesthesia, but the patient succumbed as soon as she was fully anesthetized. During these two and one-half days her pulse ranged between 110 and 120.

Necropsy revealed the fetus lying in the abdominal cavity with the membranes and placenta intact. The uterus was contracted and in the pelvis, the fundal portion of the scar having ruptured. The amount of blood present indicated that the hemorrhage had been relatively slight.

It is noteworthy that this woman sustained a partial rupture of the uterus ten hours before the complete rupture and extrusion of the uterine contents, and that she lived more than eighty hours after the latter occurrence.

STREPTOCOCCIC MENINGITIS IN THE MOTHER AND CHILD IN UTERO: REPORT OF A CASE *

G. B. KRAMER, M.D., AND WILLIAM B. WRIGHT, JR., M.D., ST. PAUL
Pathologist and Assistant to the Superintendent, Respectively, City and County Hospital

That the pregnant mother transmits infectious diseases to the child in utero is known. The transmission of measles, scarlet fever, variola, typhoid fever, malaria, recurrent fever, erysipelas, cholera, bubonic plague, anthrax, tuberculosis, syphilis and pus infection from the mother to the child in utero have been reported, but this case is an exceedingly interesting one, especially for those who are interested in the elective localization of streptococci.

REPORT OF CASE

History.—A. C., a white woman, aged 24, admitted to the City and County Hospital, St. Paul, April 12, 1918, had been complaining of backache since Jan. 1, 1918, and since that time had been treated by her local physician. The nature of the treatments were unknown to the patient's sister, from whom the history was obtained. About ten days before admission to the hospital, the patient complained of a cold, backache, sore throat and pains in the chest. She was unable to leave her bed and became delirious. Physical examination in the hospital revealed that the patient was pregnant, possibly of eight months' duration. The cervical and inguinal glands were palpable. The pupils were dilated and reacted sluggishly to light. The breath sounds were rather harsh, and some râles were heard over both lungs which were thought to be due to congestion. The temperature was 105, the pulse 140, and leukocytes 17,000. The patient died on the day of admission before a definite diagnosis had been made. The necropsy was performed by Dr. G. B. Kramer, April 13.

Abstract from Necropsy Findings.—The body was well developed and was well nourished. The pupils were dilated and were equal in size. The heart muscle was soft, and pale red. The lungs were congested and edematous. There was congestion of the stomach and intestine. The kidneys contained pinpoint hemorrhages, and on section the parenchyma was found to be cloudy and swollen. The uterus was bluish red, large and soft, and from it a well developed fetus was removed. The cervix was congested and contained mucus. The fetal membranes were intact and the placenta appeared normal. The meninges were congested. The brain was edematous and congested, and the entire cerebral hemispheres, extending from the sylvian fissures to the occipital region, were covered with greenish-yellow pus. The accumulation of pus was more marked on the right side. Smears from the pus made on the spot contained streptococci which by culture proved to be the *Streptococcus pyogenes-hemolyticus.*

The fetus, a male, was well formed, well nourished and was 40 cm. (about 16 inches) long. Nothing pathologic was noted in the thoracic and abdominal viscera. The cranial sutures were well separated. The fontanels were bulging. The meninges were congested and slightly edematous. The base of the brain, including the cerebellum, was covered with a light greenish-yellow pus. The ventricles of the brain were not dilated. Smears made from the pus contained streptococci of the same type described above.

COMMENT

Rosenow and others have proved that in a large percentage of cases streptococci isolated from lesions of certain parts of the human body will, when injected into an animal, localize in similar parts and produce like lesions in the animal. This case of meningitis in the mother and child in utero, as it appears to us, demonstrates a genuine case of elective localization of streptococci in the human body.

REPORT OF A CASE OF ANAPHYLACTIC SHOCK, WITH FAILURE TO DESENSITIZE BY INTRASPINAL ADMINISTRATION OF SERUM

LEWIS FOX FRISSELL, M.D., NEW YORK

This case of anaphylactic shock in cerebrospinal meningitis is reported in order to record the failure of serum administered intraspinally to desensitize the patient to its intravenous administration.

The patient, a woman, aged 40, first seen by me one week after the onset of her illness, had had severe headache, with moderate temperature, at first declining and then rising, on the day when first seen, April 13. No focal meningeal symptoms had been observed. On the date of admission, April 13, her temperature was 104, pulse 90, and respiration 20. Physical examination revealed only a moderately rigid neck, absent patellar reflexes, and positive Babinski and Oppenheim reflexes on the right side. Kernig's sign was present. Lumbar puncture at 5 p. m. on the same day revealed a spinal fluid under pressure, moderately turbid, containing 810 cells per cubic millimeter, a + + + butyric acid test, and the intracellular and extracellular presence of the meningococcus. The blood culture was negative. Twenty c.c. of antimeningococcus serum (New York Board of Health) were given intraspinally, on the 14th 40 c.c., and again on the 15th 20 c.c., or 80 c.c. in all.

As the patient had been seen late, though her symptoms were somewhat ameliorated, in consultation with Dr. Amoss of the Rockefeller Institute it was decided to begin intravenous treatment as well, with the idea of possibly influencing the organisms which might be walled off by a pocketing process in such inaccessible positions as the lateral ventricles. At 2:30 p. m. on the 15th, 100 c.c. were given intravenously, warmed and diluted with equal parts of warm saline. The duration of the period of administration was twenty-five minutes. At the end of the administration the patient complained of extreme dyspnea, and became unconscious and pulseless. She was breathing rapidly, in complete coma, with contracted pupils (morphin had been given one-half hour previously) and throughout the chest were heard many sibilant and sonorous râles, and a few moist crepitations. The muscles of the jaw were clenched, and the tongue, which had become edematous, dropped back into the throat and prevented her breathing. Epinephrin, 10 minims, caffein sodiobenzoate and atropin were administered during the attack, and within ten minutes the patient again became conscious. In the effort to open her mouth to pull forward her tongue, two teeth had to be removed, and the hemorrhages from this condition continued several hours, all ordinary styptics and packing failing to control it.

It had been assumed that in the forty-eight hour period between the first administration of serum intraspinally and the first intravenous administration, there would be sufficient passage through the choroid plexus to cause antibody production and thus desensitize the patient to the intravenous administration of horse serum. This assumption was obviously in error.

Thereafter, between the 16th and the 19th, 120 c.c. more of serum were given intraspinally. The cell count, which had risen, fell from 1,700 to 200, and no organisms were demonstrable after the 15th. The patient made a subsequent uninterrupted recovery, except for a severe urticarial eruption lasting from April 26 to May 2.

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* From the Pathological Laboratory, City and County Hospital.

It is our belief that we were in error in assuming that the intraspinal administration of the serum would necessarily desensitize the patient, and in the future we would always administer the serum intravenously, by fractional doses.

113 East Fifty-Sixth Street.

A CASE OF SYPHILITIC REINFECTION

Joseph Spangenthal, M.D., Buffalo

Syphilitic reinfections are of such interest and of so infrequent occurrence that I consider this case worthy of being recorded. Fortunately for the authenticity of the diagnosis, it was my privilege to observe and treat the patient throughout both infections.

M. H., a man, aged 28, consulted me in September, 1913, on account of a genital initial lesion the size of a dime. October 1, he presented a general secondary eruption, accompanied by angina, mucous patches, and involvement of the lymphatic glands. The physical signs were so typical and the diagnosis so unmistakable that it was not considered necessary to make a Wassermann test. In corroboration of the diagonsis, it will be of interest to give the history of his wife, whom he had infected.

Several weeks after the patient's infection, the wife presented a secondary papular syphilid, angina, and mucous patches. The chancre involved the whole cervix uteri. About a month later she developed an optic neuritis, with complete blindness of one eye. This cleared promptly after an intravenous injection of neo-arsphenamin (neosalvarsan).

Oct. 2, 1913, the man was given 0.9 gm. of neo-arsphenamin (neosalvarsan) intravenously. October 18 this treatment was repeated.

October 26, intramuscular injection of mercuric salicylate 1 grain in oil, was administered, and repeated weekly until four injections had been given. This constituted the entire treatment.

Every six months the patient reported for a Wassermann test, which in every instance gave a negative reaction.

In March, 1918, the patient was in Boston, and while there a Wassermann test was made, and reported negative. During March, he gives a history of frequent and prolonged kissing. The girl in question was at that time suffering from syphilis, and had later received four injections of arsphenamin (arsenobenzol).

About April 1, 1918, the patient developed a chancre of the upper lip. May 14, he again consulted me. The chancre was still present, but undergoing resolution. There was a secondary maculopapular eruption covering the entire body, accompanied by angina and glandular involvement. There was no mistaking the clinical picture of syphilitic infection.

In order to satisfy the patient as to the diagnosis, a Wassermann test was made independently by two serologists, and both reports were +++, showing complete inhibition of hemolysis.

If the theory is correct that syphilitic reinfection cannot occur unless the previous infection has been eradicated, this case should offer proof of its curability.

595 Lafayette Avenue.

Simple Method of Making Permanent Platinum Loops for Laboratory Workers.—A loop of the size desired is made of platinum wire. The loop should be a closed one, the free end being in contact with the main portion of the wire, thus: ρ. The loop is heated to white heat in a Bunsen or alcohol flame and then dipped into a container of silver nitrate crystals while hot. It is reheated in the flame until the silver nitrate is burned off. On examination it will be found that the loop has become permanently fused. The advantages of these fixed loops are believed to be, first, they are time saving, on account of the elimination of the necessity of constantly remaking loops, and second, uniformity of size can be maintained.—A. J. Canning, M.D., Major, Medical Corps, U. S. Army, Department Hospital, Manila, P. I.

Military Medicine and Surgery

NEUROCIRCULATORY MYASTHENIA

A PROBLEM OF THE SUBSTANDARD SOLDIER

ANDREW MacFARLANE, M.D. (Albany, N. Y.)
Major, M. R. C., U. S. Army; Examiner in Cardiovascular Diseases
CAMP GORDON, ATLANTA, GA.

The efficiency of an army depends on the ability and capability of the individual unit. It is, therefore, no small and no unimportant part of the duty of the medical corps of an army to determine at the earliest possible moment those who will make reliable soldiers and to separate them from those who are constitutionally or otherwise inefficient.

The fact that the present field of battle is more than 3,000 miles distant strongly emphasizes the importance of a service that will permit no useless recruit, if possible, to encumber transportation or to add to the burden of an already overcrowded hospital system. Then, too, though our country has a manifest right to take our life and property, if absolutely necessary, it would be unwise to deprive the state of a partly self-supporting civilian only to make a soldier who would break down at the first intense physical strain or shock of battle.

One of the first steps, then, in the development of a new army is to sort out those who are manifestly unfit. This group[1] includes patients with pulmonary tuberculosis, organic diseases of the heart and blood vessels, exophthalmic goiter, marked hypertrophy of the heart and persistent tachycardia. This sorting, made with considerable rapidity on account of the need of speedy action, suffices to weed out a considerable number whose inefficiency is detected by this superficial examination. The remainder return to their commands for the rapid and intensive training necessary to create real soldiers.

As this training becomes more and more intense, soldiers are reported by their regimental surgeons as not being able to keep up with their work and as complaining that the hard drilling causes breathlessness, precordial pain, headache, giddiness, and early and prolonged exhaustion. The regimental surgeons, on account of their multifarious duties, do not seem to have the time needed to observe closely and record the actual condition of these men after their various exercises and drills—the true test of their efficiency as soldiers.

The difficulty of determining with accuracy and with justice the exact condition of these soldiers was such as to render routine examinations practically worthless. Permission was therefore kindly given by the division surgeon at Camp Sevier, S. C., Lieutenant-Colonel Whaley, M. C., to assemble these doubtful cardiac patients in a separate detachment on the grounds of the base hospital to which they were assigned for rations and quarters, though they were not carried as patients on the hospital roster.

A cardiovascular detachment of ten tents was opened and forty-one soldiers were received with their complete equipment, except arms, to remain under observation. Of the forty-one patients, seven were found to have organic disease of the heart and were sent to the surgeon's certificate of disability board for discharge. Five were adjudged free from any cardiovascular disability and were returned to their commands with the request that they be kept under observation for a time.

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[1] No mention need be made here of other causes of disability—neurologic, surgical, orthopedic, etc.

CONDITION OF SUBSTANDARD SOLDIERS

The remaining twenty-nine soldiers all had this in common: They were reported as inefficient soldiers, though no determinable organic cardiovascular lesion was found. They presented practically the same syndrome: marked cyanosis of the hands extending up above the wrists; coldness and sweating of the hands and feet; sweating under the armpits even when in a cold tent; tremor; flushing; marked lability of the pulse and blood pressure on standing, lying down, and after exercise; marked thrill, often felt over the precordium; no increase of cardiac dulness; booming first sound or indefinite murmur at the apex; frequent accentuation of the second pulmonic sound, and mental instability. After exercise these patients became more or less breathless and cyanotic, and complained of precordial pain, palpitation, giddiness and abnormal exhaustion.

PIGNET'S FORMULA FOR ESTIMATING PHYSICAL EFFICIENCY*

Index Number	Efficiency
Under 10	Very strong
From 10 to 15	Strong
From 15 to 20	Good
From 20 to 25	Fair
From 25 to 30	Weak
From 30 to 35	Very weak
Above 35	Useless

*Vedder's Medical War Manual No. 1, p. 70. The weight in kilograms and the chest measure at expiration in centimeters are added and subtracted from the height in centimeters.

The type of their physique was first studied and determined according to Pignet's formula.[2] They were thus grouped: useless, 9; very weak, 6; weak, 6; fair, 5; good, 2, and strong, 1. Only one of these men could be graded as "strong." Half of them were "very weak" or "useless."

Examinations by the nose and throat specialists and the dentist revealed apparent foci of infection in every case. Many had double infections, both in diseased tonsils and in pus pockets about the teeth.

The examination of the blood in three cases before, directly after, and one hour after a two hours' hike gave the following findings: practically no difference in the number of leukocytes before and directly after exercise, and an increase of from 50 to 90 per cent. in leukocytes in all three cases one hour after exercise. No material change was determined in the types of leukocytes. Roentgen-ray examinations of the gastro-intestinal tract in four of these patients revealed normal motility of stomach and small intestine. One of the four had a gastroptosis, the border of the stomach reaching the pubis (erect posture). Examinations of the urine were not made, and temperature, pulse and respiration morning and night were not taken on account of incomplete organization. A summary of the findings in each case is given in the accompanying table.

At first the diagnosis of these cases and disposition of the men caused the greatest uncertainty. It was quickly realized that they were manifestly not fit[3] for military service, but how to classify them without arousing suspicion about one's own diagnostic acumen, without endangering the efficiency of the army and without doing injustice to the soldier himself was the question. Mitral stenosis, tachycardia and goiter heart kept constantly recurring, but these diagnoses were made with a feeling of question and doubt.

Finally the realization suddenly became manifest that all these soldiers were a *group of substandard men who have been subjected for many years to a low grade infection and were suddenly thrown into a new environment with conditions of life entirely different from those of all their previous experiences.*

The diagnosis was then no longer in doubt. The listless, dull expression, the relaxed, careless posture and carriage, the tremor, the marked cyanosis of the hands reaching half way to the elbows, the coldness and moisture of the palms of the hands, and the profuse perspiration of the armpits even in a cold tent made a picture which, when appreciated, is recognized often at the first glance.

The British, in their vital haste to send immediate reenforcements to the French army, accepted, practically without examination, every volunteer who could walk. The result of such an unfortunate though necessary policy became quickly apparent. The British hospitals were soon hopelessly submerged by soldiers with irritable hearts who seemed to be made worse under the usual hospital treatment and thus were likely to become chronic invalids and occupy beds urgently needed for the patients with serious diseases.

TREATMENT

Thomas Lewis and his associates, among whom are several members of the Medical Reserve Corps of the United States Army, promptly established order out of this chaos and placed the treatment of these patients on a basis which not only rendered the diagnosis certain but also definitely determined the prognosis and absolutely established the correct method of treatment, that is, progressively graduated, efficient exercise.

The British problem had to do with soldiers returned disabled from the front, half of whom were regarded as constitutionally unfit, while the disabled condition of the other half was the result of extreme exhaustion, shock or infection. The British cases are divided etiologically into three groups: A, constitutional, 50 per cent; B, exhaustive, and C, toxic, the two latter forming the other 50 per cent.

Our present problem is somewhat different from that of the British, as we have the time, the men and the opportunity, without interfering with the rapid training of the fit. Briefly, our task is to prevent the sending to the fighting line of the 50 per cent. who, because they are constitutionally defective, will promptly break down under the intense strain of modern warfare and thus become an incalculable burden to the Army, rather than be of any military value. The determination of this constitutionally substandard 50 per cent. should not, in the great majority of cases, be a matter of difficulty. It does not require complicated apparatus or intricate methods. It resolves itself simply into determining by close observation which men cannot efficiently do the work of a soldier.

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[2] Pignet's formula is given apparently as of accepted value but without comment. Investigation reveals that it was evolved by Major Pignet, a contemporary French army surgeon. Dr. J. A. Blake, a British army surgeon, translated this formula into British measurements. Major Butza of the Roumanian army records the use of this test on 816 men in different regiments and considers it of incalculable value. It was in use in the garrison at Bucharest as a method of determining the physical constitution of the recruits and consequently their fitness for military service. He states that this formula is an excellent one for use in the interest of the men themselves, for the army and for the nation.

[3] Many of these soldiers were refused discharge by the surgeons' certificate of disability board, as no determinable lesion was found.

This type of case plays no part in civil practice *because these patients seek the line of least resistance* and undertake only the work they are physically able to do. They are often classed among the shiftless, the ne'er-do-wells and the constantly complaining, and are without "pep," energy or ambition.

With the keenness of the great internist, DaCosta recognized the same condition in the Civil War, described it accurately under the term "irritable heart of soldiers," and prescribed a system of graduated military work which in essentials is similar to that now advised by the British. In order to avoid the psychic effect of the fear of heart disease on these men, Lewis gave the name "effort syndrome," which tells nothing except that it is the result of effort, and then only in a very small percentage of the soldiers subjected to excessive effort. The American physicians working with Lewis, recognizing its nervous and circulatory manifestations and its kinship to neurasthenia, have called it "neurocirculatory asthenia." This term, which is very expressive, lacks, however, a reference to one of the most striking characteristics of this disorder, namely, the marked weakness of the muscular system, both the myocardium and the voluntary muscles. This omission is corrected by the use of the term myasthenia instead of asthenia, thus placing this disability on the triad weakness of the nervous, circulatory and muscular systems.

In the cases under our observation, the object was not only to recognize this condition but also to initiate measures which might result in gradually building up a condition of first-line efficiency in some of those who had been found unfit, to render others valuable for special military service, and to return the remainder to their former occupations in civil life.

These soldiers were therefore sent to the clinics at the base hospital for the treatment of their teeth and tonsils, and graduated exercises were given twice a day with graded hikes in the afternoon. An effort was made in the exercises to follow out the advice of Lewis based on the British experiences. They were taken from the manual and arranged by Capt. J. D. Thomas, M. R. C., and were carried out with soldierly precision under the direction of an intelligent

RESULTS OF EXAMINATIONS IN TWENTY-NINE CASES*

Name and Case Number	Neurovascular Condition	Efficiency by Pignet's Formula	Nose and Throat Condition	Dental Condition	Other Conditions
1. C. B.	Precordial pain; breathlessness; exhaustion; giddiness; palpitation; cold hands and feet; cyanosis; sweating; mental instability	28 Weak	Diverted septum, left; hypertrophied middle turbinate; tonsils enlarged and pus in pocket	Severe gingivitis; numerous pus pockets	No hookworm
2. M. J. G.	Breathlessness; anginal pain; hyperalgesia; exhaustion; palpitation; giddiness; headache; lassitude; coldness and sweating of hands and feet; irritability	46.50 Very weak	Tonsils submerged and enlarged; crypts with cheesy material; possible foci	No foci of infection	No hookworm
3. L. G.	Breathlessness; exhaustion; giddiness; fainting; palpitation; headache; lassitude; cyanosis; cold hands and feet; sweating; flushing; mental instability; tremors	27.50 Weak	Negative	Two foci of infection; slight gingivitis	No hookworm
4. W. R.	Breathlessness; hyperalgesia; giddiness; palpitation; headache; sweating	35 Useless	Right ethmoid suspicious; middle turbinate unhealthy and discharging	Gingivitis with pus pockets around several teeth	No hookworm
5. B. G. O.	Breathlessness; precordial pain; exhaustion; giddiness; fainting; palpitation; headache; coldness and sweating of hands and feet; cyanosis; flushing; mental instability	37.15 Useless	Left tonsil diseased and possible focus; adenoids present	Negative	No hookworm
6. W. B. L.	Breathlessness; precordial pain; hyperalgesia; giddiness; palpitation; headache; lassitude; coldness and sweating of hands and feet; cyanosis; mental instability	31.76 Very weak	Bad tonsils, should be removed; adenoids	Focal infection suspected; sent for roentgen ray examination	No hookworm
7. J. O. P.	Cough; breathlessness; precordial pain; giddiness; palpitation; fainting; lassitude; coldness of hands and feet; sweating of hands; cyanosis; mental instability	27.90 Weak	Crypts of tonsils show cheesy material; possible foci	Slight gingivitis; no other foci of infection	No hookworm
8. C. F. G.	Breathlessness; precordial distress; exhaustion; giddiness; fainting; palpitation; slight coldness and sweating of hands and feet; slight cyanosis; sleeplessness; inability to fix attention; slight tremor	24.4 Fair	Nose and sinuses clear; tonsils small; small amount of cheesy material from a few follicles	One tooth is a focus of infection	No hookworm
9. A. M. B.	Breathlessness; precordial distress; exhaustion; giddiness; fainting; headache; sleeplessness	26.50 Weak	Questionable anterior bilateral ethmoid infection; fair sized adenoids; tonsils much enlarged	Mouth in bad condition; gingival pus pockets; several suspected blind abscesses	No hookworm
10. G. F. E.	Breathlessness; exhaustion; giddiness; headache; palpitation; coldness and sweating of hands and feet; marked cyanosis; marked tremor and flushing	38.50 Useless	Nose and throat clear; cheesy material in both tonsils; possible foci of infection	Negative; not caring for teeth	No hookworm
11. H. H.	Marked breathlessness; precordial distress; exhaustion; occasional fainting; headache; coldness and sweating of hands and feet; cyanosis; sleeplessness; slight tremor; hyperalgesia	21.50 Fair	Nose and sinuses clear; crypts of tonsils cheesy; possible foci of infection	Two teeth need attention; no focal or blind abscesses	No hookworm
12. A. L.	Breathlessness; precordial distress; exhaustion; giddiness; palpitation; headache; lassitude; coldness and sweating of hands and feet; irritability; restless at times; flushing	21.50 Fair	Sinuses clear; adenoids large; tonsils very large and badly infected	Negative	No hookworm; roentgen ray suggests healed tuberculosis; also some present activity
13. O. K.	Marked breathlessness; giddiness; palpitation; coldness and cyanosis of hands and feet; irritability	31.38 Very weak	Sinuses clear; cheesy material expressed from tonsils; possible foci of infection	Negative	No hookworm
14. O. C.	Breathlessness; precordial pain; hyperalgesia; exhaus- [illegible] itation; headache; lassitude; [illegible] of feet and hands; cyanosis; slight flushing	12 Strong	Nose and sinuses clear; tonsils definitely diseased; probable foci	Gingivitis with a few pus pockets, two teeth suspected as having blind abscesses at roots	Hookworm
15. J. S. G.	Breathlessness; precordial pain; exhaustion; giddiness; palpitation; headache; coldness and sweating of hands and feet; cyanosis; irritability	34.74 Very weak	Deviated nasal septum blocking ventilation and drainage of sinuses; tonsils small; cheesy material in crypts	Suspected blind abscesses; gingival pockets about all teeth possible foci	No hookworm

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* Although the number of cases described is comparatively small, they are characteristic and apparently represent a large group of potential inefficients.

RESULTS OF EXAMINATIONS IN TWENTY-NINE CASES—*Continued*

Name and Case Number	Neurovascular Condition	Efficiency by Pignet's Formula	Nose and Throat Condition	Dental Condition	Other Conditions
16. T. S.	Marked breathlessness; precordial distress; exhaustion; giddiness; lassitude; coldness and sweating of hands and feet; cyanosis	45.60 Useless	Sinuses clear; tonsils large and badly diseased; probable foci of infection	Negative	No hookworm
17. J. C. S.	Breathlessness; precordial pain; hyperalgesia; exhauston; giddiness; palpitation; headache; lassitude; coldness and sweating of hands and feet; cyanosis; sleeplessness; inability to fix attention; marked tremor	44.46 Useless	Deviated septum; right sinuses clear; cheesy material expressed from tonsils	Several suspected blind abscesses; gingivitis with marked pus pockets	No hookworm
18. C. M.	Breathlessness; precordial pain; exhaustion; giddiness; palpitation; lassitude; coldness and sweating of hands and feet; slight cyanosis; sleeplessness; inability to fix attention	29.71 Weak	Small amount of cheesy material expressed from tonsils	Probably several blind abscesses	No hookworm
19. S. P. M.	Breathlessness; precordial pain; exhaustion; giddiness; palpitation; lassitude; coldness and sweating of hands and feet; slight cyanosis; sleeplessness; inability to fix attention	86.9 Useless	Nose and sinuses clear; tonsils small and fibrous; negative	Negative; slight gingivitis with some pus	No hookworm
20. C. E.	Breathlessness; exhaustion; giddiness; midsternal pain; palpitation; headache; lassitude; coldness and sweating of hands and feet; irritability; restless; tremor; slight cyanosis	19.10 Good	Chronic ethmoiditis, bilateral; atrophic rhinitis	Severe gingivitis, some pus pockets; no blind abscesses	No hookworm
21. C. L.	Breathlessness; precordial distress; exhaustion; giddiness; lassitude; irritability; sleeplessness	30.76 Very weak	Acute rhinitis; cheesy material in tonsils; possible foci of infection	Some gingival pus pockets; blind abscesses on 2 teeth	No hookworm
22. H. L.	Breathlessness; precordial distress; exhaustion; palpitation; lassitude; coldness and sweating of hands and feet; cyanosis; slight tremor	20 Fair	Nose and sinuses clear; some cheesy material expressed from tonsils; possible foci of infection	Several pus pockets; severe gingivitis and probable pyorrhea	No hookworm
23. J. S. S.	Breathlessness; precordial pain; exhaustion; giddiness; palpitation; headache; lassitude; coldness and sweating of hands and feet; cyanosis; sleeplessness; inability to fix attention	17.15 Good	Nose and sinuses clear; tonsils seem badly diseased	Bad mouth; pus pockets about all teeth; blind abscesses on 2 molars	Hookworm
24. J. H.	Breathlessness; precordial pain; exhaustion; giddiness; palpitation; headache; lassitude; coldness and sweating of hands, feet and body; cyanosis; mental instability; tremor	35.12 Useless	Nose and sinuses clear; deviated septum; tonsils *small* but infected; probable foci	Slight gingivitis; no *visible pockets*; 2 teeth suspected of blind abscesses	Hookworm
25. W. E. T.	Breathlessness; precordial pain; exhaustion; giddiness; fainting; palpitation; headache; lassitude; sweating and coldness of hands, feet and body; cyanosis; mental instability; slight tremor	29.39 Weak	Posterior group sinusitis, bilateral; anterior ethmoid left; tonsils definitely diseased	Death of two teeth from old trauma; probable antrum trouble, right side	Hookworm
26. G. E. F.	Breathlessness; precordial pain; exhaustion; giddiness; palpitation; lassitude; coldness and sweating of hands, feet and body; moderate cyanosis; irritability; slight tremor	38.92 Useless	Nose and sinuses clear; tonsils enlarged and infected; probable foci	Some carious teeth; other teeth in good condition except 2 lower incisors	No hookworm
27. S. T.	Breathlessness; precordial pain; exhaustion; giddiness on exercise; fainting; palpitation; headache; lassitude; coldness and sweating of hands, feet and body; cyanosis; mental instability; slight tremor	20.78 Fair	Nose and sinuses clear; tonsils definitely diseased; probable foci of infection	Teeth in front contained old root under bridge; two pockets due to gingivitis	
28. G. S.	Breathlessness; anginal pain; exhaustion; giddiness; faints easily; palpitation; lassitude; sweating and swelling of feet; cyanosis; mental instability; slight tremor	30.75 Very weak	Nose and sinuses clear; crypts of both tonsils filled with cheesy material; possible foci	Negative	No hookworm
29. G. R. M.	Breathlessness after severe exercise; precordial pain on exercise; slight exhaustion; very slight tremor; dislike of alcohol	32.79 Very weak	Nose and sinuses clear; several follicles in each tonsil filled with a cheesy material; possible foci	Slight gingival infection; questionable foci of infection; 2 teeth suspected	No hookworm

and enthusiastic drill sergeant. During the exercises the soldiers were closely watched by two physicians in order to detect at once evidence of abnormal exhaustion. These simple exercises, readily applicable, seemed more accurate than any complicated system, as each soldier had in them the correct measure of his own efficiency, that is, his own weight. The problem is what each soldier can do with his own physique, irrespective of height and weight. This limited and superficial try-out, so easily inaugurated, would seem to indicate that much of profit and scientific value might be secured if the examination could be extended and made more complete. These soldiers, partly well, partly ill, are not proper hospital patients, but should be kept under rigid military observation in field hospital tents or in barracks. The temperature, pulse and respiration should be taken twice a day. There should be frequent blood and urinary examinations, and the subjects should be accessible to a base hospital where treatments for foci of infection could be carried out and roentgenograms taken as seemed necessary.

A well balanced and graduated series of exercises and hikes under especially trained and enthusiastic drill sergeants, followed later by the gradual resumption of the regular work of the soldier, could be initiated and the exact results noted from day to day, in order to determine the wisdom and extent of further effort. Baseball, football, basketball, sparring and wrestling, together with such appropriate occupations as gardening, knitting and basket weaving, should be encouraged in this type of case, as there is a marked tendency to mental depression and introspection, with a lack of initiative.

Such reconstructive work would save for the Army many soldiers who, under the stress of warfare, would quickly break down and would become a serious burden on our hospital service for long periods. Others not so strong could be held in the Army for special service, and the remainder, totally unfit for military duty, could be returned to their former occupations in civil life, all better and wiser men for their experiences in the Army.

Serving Bread and Meat in Italian Restaurants.—A decree of the commissary general for supply and consumption of food provides that in restaurants, pensions, dining cars, cafés, milk shops, hotels and other public rooms in which food is consumed, bread must be served in thin slices, untoasted, not exceeding 2 cm. in thickness, and for each repast in an amount not exceeding 80 gm. In certain indicated refreshment rooms of a popular character, the bread served must not exceed 150 gm. for each meal. . . . For these refreshment rooms the form of serving in slices, as ordered for the other establishments, is not prescribed. The serving of cold meat, or meat prepared in any way whatever, sausage included, as a preliminary course, in the establishments mentioned, is prohibited.—*Commerce Reports,* Dec., 26 1917.

THE TRANSPORT SPLINTS OF THE AMERICAN ARMY

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Statistics show that somewhat more than 50 per cent. of gunshot wounds involve the bones and joints. The efficient splinting of these injuries at the earliest possible moment is universally acknowledged by all surgeons to be of the greatest importance for the following reasons:

1. It relieves the suffering of the soldier.
2. It saves time in transport.
3. It decreases the danger of shock.
4. It maintains alinement of broken bones.
5. It limits the spread of infection.
6. It prevents the further laceration of nerve, vascular and muscular tissue.

In August, 1917, it became evident to certain American surgeons who had been serving in British hospitals that entirely satisfactory splinting for transport could be accomplished with a small number of splints of simple pattern. The matter was called to the attention of the chief surgeon, American Expeditionary Forces, and a splint board for the standardization of splints for the medical department of the U. S. Army was promptly appointed by him and confirmed by order of General Pershing.

This board met, Aug. 28, 1917, and reported that with seven types of splints all bone and joint casualties could be adequately treated at the front. The board was then directed to write a manual. This manual, approved by General Bradley, chief surgeon, A. E. F., and by General Pershing, was published in an edition of 25,000 and was available for predistribution to all the medical officers of the American overseas forces before our battle casualties began. The expense of publication was borne by the American Red Cross, by whom it was supplied to the Medical Department of the U. S. Army.

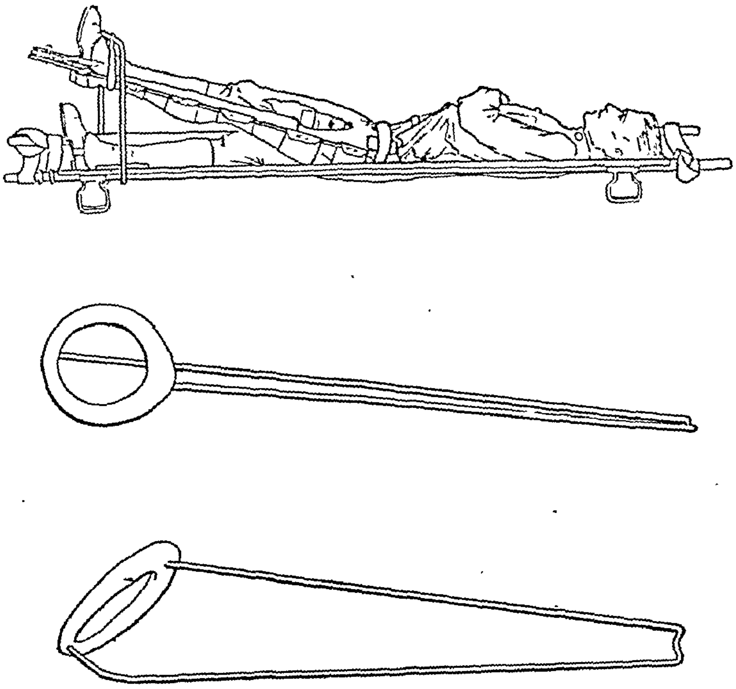

Fig. 1.—Thomas Traction leg splint.

Considerations that influenced the selection of the standard splints were:

1. Efficiency as proved by experience.
2. Transportability in order that ample supplies might be carried forward.
3. Simplicity of design in order to speed up manufacture and assure adequate supply.
4. Ease of application in order that underlying principles might be readily grasped by regimental medical officers and easily taught to stretcher bearers.

The Thomas and Jones splints for the upper and lower limbs with the modifications in the Thomas traction arm splint devised by Major Murray of the South African Royal Army Medical Corps, and the modification of the Thomas traction leg splint devised by Lieutenant-Colonel Keller and Major Blake, represented the *pièces de résistances* of the group, embodying as they do the combined principles of integral fixation and traction. These two principles are of almost equal importance in most of the severe bone and joint injuries. There has been abundant demonstration of their value not only in the treatment of the present battle casualties but also during the fifty-odd years during which time they have been employed in civil life by Hugh Owen Thomas of Liverpool and his great successor, Col. Sir Robert Jones, R. A. M. C. They had not been as widely known up to the time of the present war as one might expect, but this lack of familiarity with them among surgical and orthopedic men has not been flattering to the profession's appreciation of true mechanical values.

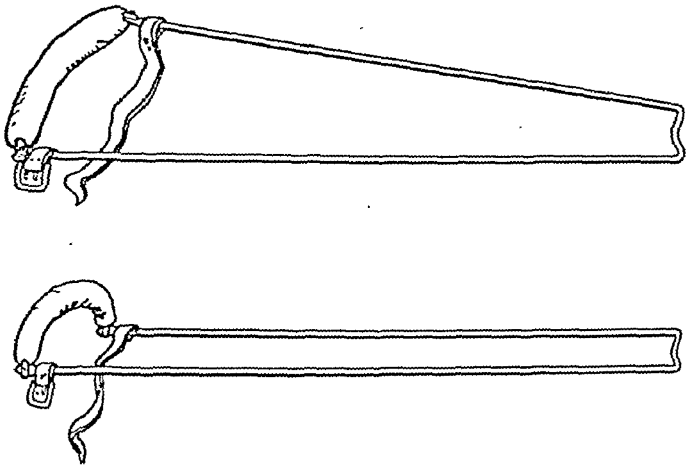

Fig. 2.—Blake-Keller hinged half ring modification of Thomas Traction leg splint.

Four splints were included for fixation only:

(*a*) The long Liston splint, necessary occasionally in fractures of the pelvis.

(*b*) The Cabot posterior wire splint, which is widely known in America.

(*c*) The Jones "crab" or "cock up" wrist splints. Form splints for fixation simply were included.

(*d*) A form of wire splinting material known as ladder splinting. The latter material is proving of great value on account of its extreme adaptability, lightness and cleanliness.

DESCRIPTIONS OF TRANSPORT SPLINTS

The following descriptions of these transport splints are taken from the Manual of Splints and Appliances referred to above and prepared for the Overseas Forces:

1. (*a*) *Thomas Traction Leg Splint* (Fig. 1).—The splint consists of a padded ring, slightly ovoid in shape, set on two iron wire rods at an angle of 55 degrees with the outer rod. The rods are three-eighths inch in diameter. At the inner and shorter of these two rods the ring is twice as heavily padded as at the outer, and the ring is symmetrically depressed at

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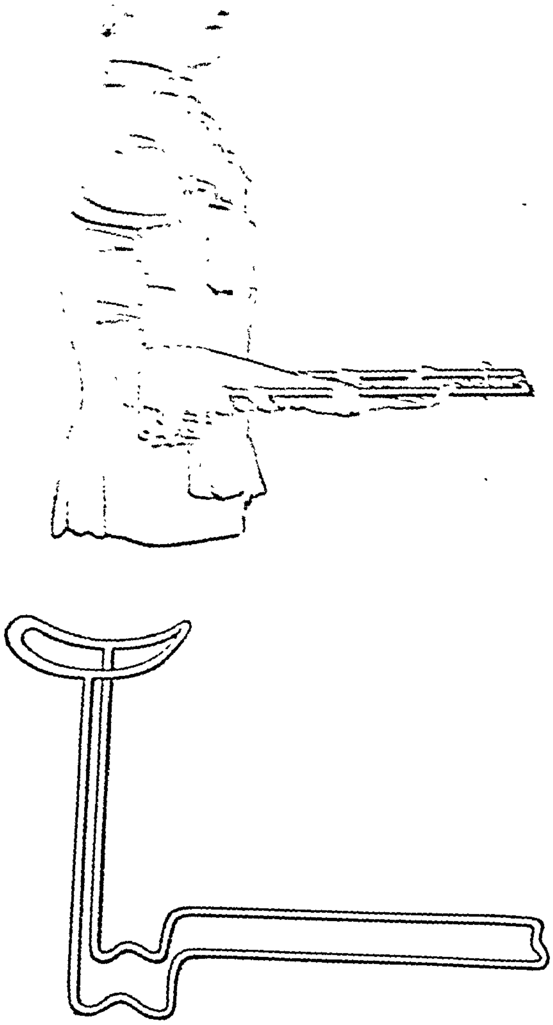

Fig. 4.—Jones humerus traction splint. The American pattern of the splint is here illustrated. By changing the pattern of the axillary crutch the splint is made adaptable to either side of the body. By slightly lengthening the forearm piece, traction on the forearm may be obtained.

possibility of displacement of fragments, or when the traumatic lesion of the joint is likely to result in serious infection and muscular contracture.

6. *Jones "Cock Up" or "Crab" Wrist Splint* (Fig. 7).—To a piece of thin sheet iron, about 8 by 4 inches, shaped like a hollow trough, a flat soft-iron rod, three-fourths inch in width and one-eighth inch in thickness, is riveted. This flat iron rod extends distally from the sheet iron trough about 10 inches, bending upward at about 6 inches distally from the edge of the trough. At the distal end of the rod is riveted by a single rivet a very light flat iron crossbar, 5 inches in length and turned up at either end. At 4 inches distally from the trough is riveted a very light flat iron crossbar, 3 inches in length.

Any degree of dorsal flexion of the hand may be obtained by varying the bend of the central iron rod. The splint is applied to the forearm and metacarpophalangeal junction of the hand and retained by bandages or adhesive plaster. It should be used in cases of partial or total "wrist drop." If it is desirable to retain a fully extended position of the fingers, a piece of splint material, to be described, may be used as a "cock-up" splint.

7. *Ladder Splint.*—This ladder splint material is made of galvanized iron wire one-eighth inch in diameter, two pieces running parallel to each other about 3½ inches apart. At one end the wire is continuous and forms a terminal 3½ inches in width. The lateral wires are joined by small one-sixteenth-inch wires slightly arched at a distance of three-fourths inch from each other. T
inch length, and may be cut
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foot, forearm, elbow or k

8. For transport in arm or leg cases, a quadrilateral iron stretcher bar (Figs 1 and 3), snapping on the sides of the litter, is essential. This extends upward about a foot over the patient like a bridge, and to it is slung the leg or arm splints. It adds to the fixation, wards off jars and knocks, and adds greatly to the ease of the patient.

TYPES OF INJURY

In the order of their importance, the various types of injury are:

1. *Fracture of the Thigh.*—In the experience of the British and French armies, fractures of the thigh have proved to be among the most serious of gunshot wounds, both as regards mortality and as regards future function. Severe shock, nonunion, malunion with shortening and bowing, persistent infection and osteomyelitis have been all too common. There is a very general agreement among British and American surgeons of experience that the best method of preventing these untoward results is the Thomas traction leg splint.

2. *Fractures Into and Penetrating Wounds of Joints.*—Immobilization is here the first requisite, but traction is often a very close second. Here again the Thomas traction arm splint (Murray hinge modification for transport), Thomas traction leg splint or the Blake-Keller hinged modification are of greatest value for both purposes. The Cabot posterior wire splint combined with side splints of the ladder splinting material or light splint wood offers comfortable and efficient immobilization for the joint when traction is unnecessary.

The ladder splinting material capable of being bent in any angle or series of angles furnishes excellent fixation for the shoulder and the smaller joints.

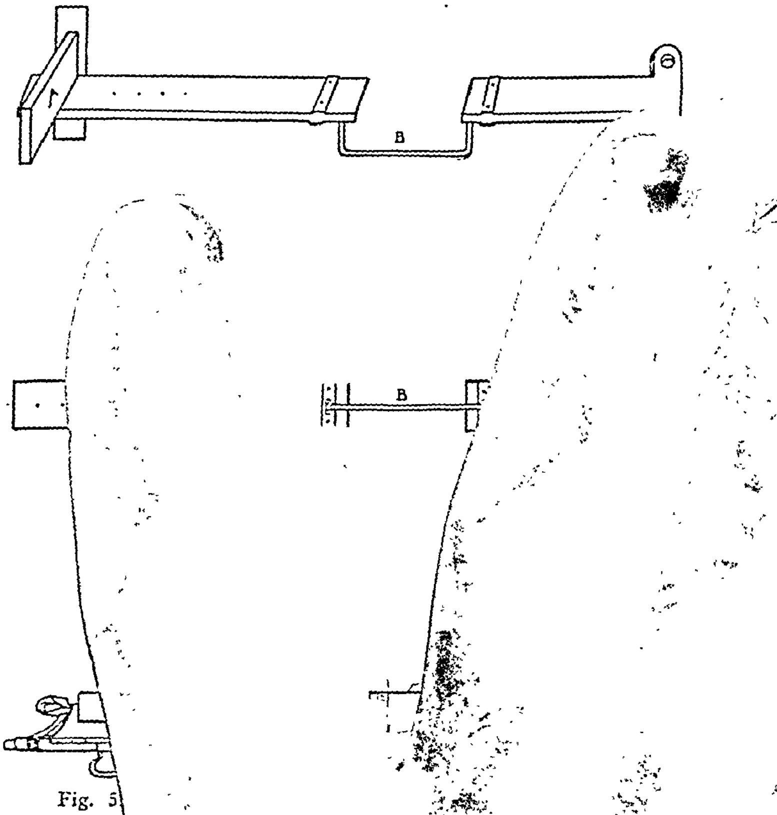

Fig. 5

3. *Frac*
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either side of the inner rod to form a concavity which hugs the ischial ramus and fits snugly around the ischial tuberosity. The long and short diameters of this ring vary, since the splint as used by the British army comes in several sizes; but a ring of average size measures across the long diameter 9½ inchs and across the short diameter 9 inches. The outer rod descends from the ring vertically for 2½ inches and then inclines toward the inner rod. At the starting point of the inner rod the two wires are 8½ inches apart, and at the bottom they are continuous in an indented or notched end, 3½ inches in width, about which the traction bands are wound and knotted. (Nail or wood twister is inserted as in the Thomas arm splint.) The outside rod is 47 inches in length and the inside rod 42 inches in length. The space between the rods may be varied by bending them outward or inward. If desired, the splint may be bent at the knee.

(*b*) *The Blake-Keller Hinged Half Ring Modification of the Thomas Traction Leg Splint* (Fig. 2).—The splint consists of a padded half ring set on two iron rods three-eighths inch in diameter. (The indentation at the inner rod has been omitted, having in practice been found unnecessary.) The half ring forms an angle of 55 degrees with the outer and longer rod, and the ring is fastened to both rods by a stout joint which allows it to be moved through an arc of 180 degrees. At the junction of the inner rod and half ring is fastened a strap of webbing or leather, and at the junction of the outer rod and half ring is fastened a buckle. The posterior half ring is thereby kept in close apposition to the limb. The rods are the same distance apart and the same shape and size as in the Thomas leg splint. The space between the rods may be varied by bending them outward or inward. If desired, the splint may be bent at the knee.

The advantages of the hinged half ring modification of the Thomas splint are:

1. Ease of application without passing a complete ring, as in the Thomas splint, over the injured limb.
2. Ease of access to wounds of the groin because of the absence of the rigid anterior portion of the Thomas complete ring.
3. Possibility of use as an anterior leg splint for fixation and suspension, after the manner of the Hodgen splint.
4. Ease of packing for transport.

2. (*a*) *Thomas Traction Arm Splint* (Fig. 3).—The splint consists of a padded circular ring 7½ inches in diameter and two rods 34 inches in length. At the ring these rods are 7½ inches apart and at the bottom they are continuous in an indented or notched end, 2½ inches in width, about which the traction bands are wound and knotted. The space between the rods may be widened or narrowed by bending them outward or inward.

(*b*) *Murray's Modification of the Thomas Traction Arm Splint.*—The splint consists of a padded ring of the same shape and size as in the Thomas arm splint. The rods are made of the same wire and are of the same length and the same distance apart as the Thomas arm splint. The modification consists of a joint between the rods and the ring, either by means of a hinge 1½ inches below the ring or by making loops of the rod wires close to the ring, which loops receive similar loops at the upper ends of the rods. The purpose of the splint is to provide close apposition of the ring to the shoulder and thorax and still allow the injured limb to be brought to the side of the body—an important factor in recumbent transportation.

3. *Jones Humerus Traction Splint* (Fig. 4).—A padded half ring to fit in the axilla like a crutch, 7½ inches in diameter. The wire of the half ring is continued to form a complete circle, which is bent on itself at right angles to outline a quarter sector of a sphere. The right angle wire half circle extends out over the shoulder and upper arm and is not padded. The wire rods, one-fourth inch in diameter, descend from the center of the padded axillary crutch and from the center of the right angle unpadded shoulder portion of the ring. The inside rod next to body is 14 inches long and the outside rod is 18 inches long, curved outward slightly over the convexity of the deltoid. The rods terminate in indentations or notches about which the humeral traction bands are wound and tied. The rods then ascend for 4 inches, and at this point are bent at a right angle in the same plane as the humeral rods; they then extend forward for 12 inches, 4½ inches apart, to form a continuous splint for forearm, wrist and metacarpal fixation.

4. *Long Liston Splint with Bridge Interruption* (Fig. 5).—The splint consists of two pieces of flat wood of unequal lengths. The wood is one-half inch thick and 3 inches wide. The shorter of these two pieces is 14 inches long and to its upper end is fastened a wooden cross-bar, 9 inches long and 2 inches wide, penetrated at either end by an inch hole through which bandage material may be run for fastening the splint to the thorax. The longer of these two pieces of wood is 32 inches in length, and is perforated at the center through its lower 15 inches by small holes 2 inches apart; these holes receive the thumb screw set-nut of the foot piece. These two pieces of wood are joined together by a bridge of iron wire three-eighths inch in diameter; the span of this bridge is 9 inches and its elevation is 2 inches. The wooden foot piece is 12 inches in length, 4 inches in width and three-fourths inch in thickness, set at right angles to the lower leg splint and adjustable to different lengths of limbs, by means of the thumb screw set-nut and holes. If an abducted position of the limb is desired, the iron wire bridge may be bent to accomplish this purpose.

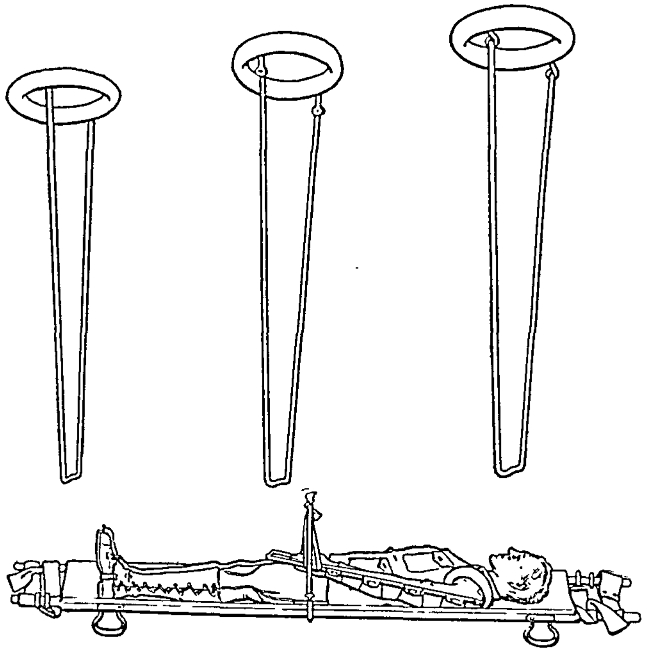

Fig. 3.—Thomas Traction arm splint and hinged modification for transport.

5. *Cabot Posterior Wire Leg Splint* (Fig. 6).—The splint consists of a quadrilateral form of one-fourth inch wire 7 inches in width at the upper portion, which is bent at right angles and concave to conform to the convex surface of the upper thigh. It narrows at the heel and at this point is bent upward to form a right-angle foot piece 12 inches in height and 4 inches wide. For use, this frame of wire is bandaged and padded and usually bent at the knee. It is retained in position on the limb by adhesive plaster straps. . . .

Splints made of light splint wood or the wire ladder splint material (to be described) are applied posteriorly and on either side of the limb, and are fastened and retained by webbing straps and buckles. The ease of application and adaptability of this splint present the danger of its too general employment. The board recognizes the frequent maltreatment encountered by the customary use of the ordinary ham splint and the straight posterior wood splint with a right-angle foot piece. The application of the posterior wire splint should be scrupulously restricted to wounds of muscular tissue, slight injuries to the knee joint, fractures of the fibula and injuries to the ankle joint and tarsus not requiring traction in addition to fixation.

The traction and counter traction principle of the Thomas splint and its modifications should be maintained in all cases in which there is solution of continuity of the bone with the possibility of displacement of fragments, or when the traumatic lesion of the joint is likely to result in serious infection and muscular contracture.

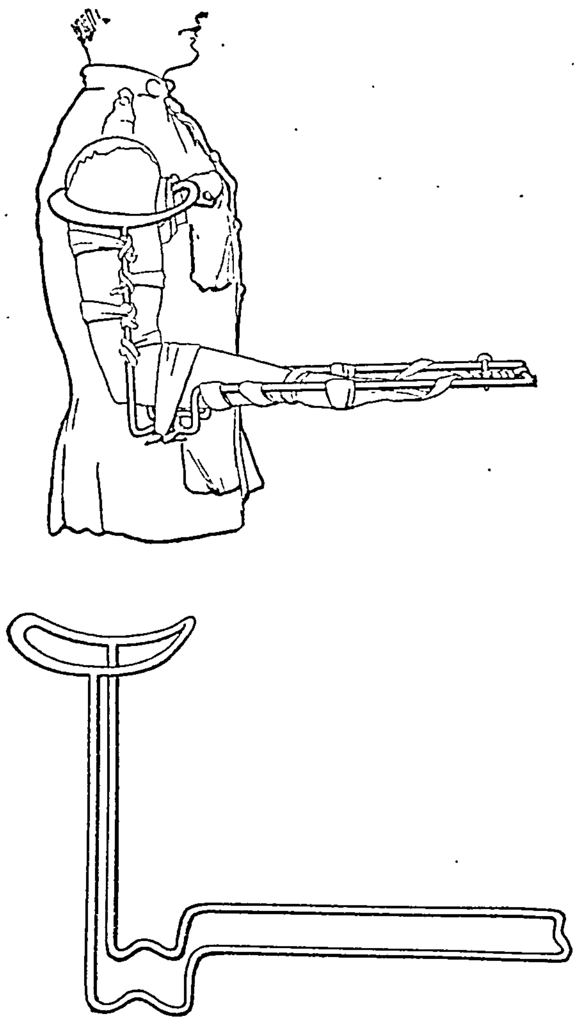

Fig. 4.—Jones humerus traction splint. The American pattern of the splint is here illustrated. By changing the pattern of the axillary crutch the splint is made adaptable to either side of the body. By slightly lengthening the forearm piece, traction on the forearm may be obtained.

6. *Jones "Cock Up" or "Crab" Wrist Splint* (Fig. 7).—To a piece of thin sheet iron, about 8 by 4 inches, shaped like a hollow trough, a flat soft-iron rod, three-fourths inch in width and one-eighth inch in thickness, is riveted. This flat iron rod extends distally from the sheet iron trough about 10 inches, bending upward at about 6 inches distally from the edge of the trough. At the distal end of the rod is riveted by a single rivet a very light flat iron crossbar, 5 inches in length and turned up at either end. At 4 inches distally from the trough is riveted a very light flat iron crossbar, 3 inches in length.

Any degree of dorsal flexion of the hand may be obtained by varying the bend of the central iron rod. The splint is applied to the forearm and metacarpophalangeal junction of the hand and retained by bandages or adhesive plaster. It should be used in cases of partial or total "wrist drop." If it is desirable to retain a fully extended position of the fingers, a piece of splint material, to be described, may be used as a "cock-up" splint.

7. *Ladder Splint.*—This ladder splint material is made of galvanized iron wire one-eighth inch in diameter, two pieces running parallel to each other about 3½ inches apart. At one end the wire is continuous and forms a terminal 3½ inches in width. The lateral wires are joined by small one-sixteenth-inch wires slightly arched at a distance of three-fourths inch from each other. This material is furnished in C inch length, and may be cut by a file or heavy wire cutters standa lengths for coaptation splints, or for the fixation of the foot, forearm, elbow or knee.

8. For transport in arm or leg cases, a stretcher bar (Figs 1 and 3), snapping on litter, is essential. This extends upward a the patient like a bridge, and to it is slun splints. It adds to the fixation, wards off and adds greatly to the ease of the patient.

TYPES OF INJURY

In the order of their importance, the of injury are:

1. *Fracture of the Thigh.*—In the exp British and French armies, fractures of t proved to be among the most seriou wounds, both as regards mortality and future function. Severe shock, nonuni with shortening and bowing, persistent in osteomyelitis have been all too common. very general agreement among British an surgeons of experience that the best met venting these untoward results is the Thom leg splint.

2. *Fractures Into and Penetrating W Joints.*—Immobilization is here the first re traction is often a very close second. Here Thomas traction arm splint (Murray hinge tion for transport), Thomas traction leg spli Blake-Keller hinged modification are of grea for both purposes. The Cabot posterior w combined with side splints of the ladder material or light splint wood offers comfort efficient immobilization for the joint when tr unnecessary.

The ladder splinting material capable of be in any angle or series of angles furnishes e fixation for the shoulder and the smaller joint

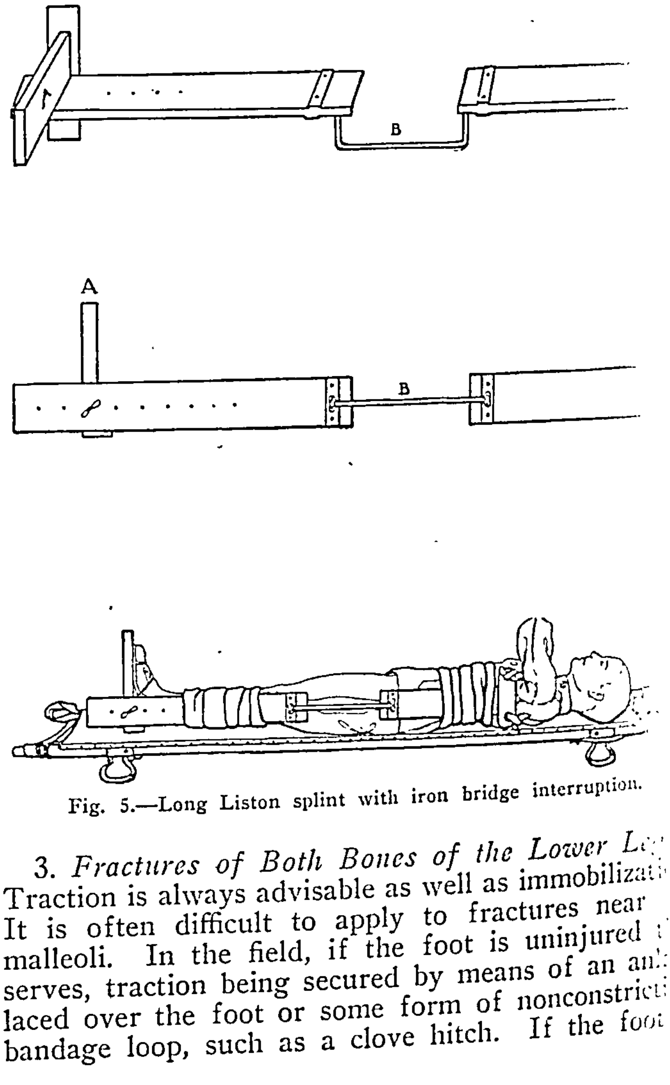

Fig. 5.—Long Liston splint with iron bridge interruption.

3. *Fractures of Both Bones of the Lower L* Traction is always advisable as well as immobilizat It is often difficult to apply to fractures near malleoli. In the field, if the foot is uninjured serves, traction being secured by means of an an laced over the foot or some form of nonconstrict bandage loop, such as a clove hitch. If the foot

antitoxin before arrival. The vast majority were of the *grand blessé* (severe) type, as this formation was designated to receive that group exclusively when conditions permitted; obviously this rule could not always be made absolute. In the early stages, lack of personnel and the rush of many injured made it impossible to avail ourselves of preliminary roentgen examination; despite this, over 80 per cent. of foreign bodies were removed. Except for the first few days, all the patients were kept long enough to approximate the end-results.

TYPE OF INJURY

The cranial injuries were notable because the frontal and parietal regions were almost exclusively affected. In all cases, shell fragments were the causative agent, the wound of entrance was relatively small, the bone fragments were deeply driven into the brain substance, and the internal table was much more extensively broken than the external. In but one case (inoperable) were focal paralytic symptoms marked; in this, necropsy demonstrated that a small shell fragment had entered the left parietal region, traversed both hemispheres and became embedded on the other side directly under the skull almost opposite the point of entry. Treatment in the operative cases resolved itself into extraction of the shell fragment if accessible, complete closure with silkworm-gut ("crin de Florence"), and drainage if complete excision of the traject could be made in cases received within twelve hours of injury. The drain was removed at the end of twenty-four hours, as a rule, and healing was unusually kindly in nearly all of the cases. This class of case should be subjected to a period of hospitalization varying from twelve to twenty days. It is worthy of note that cases showing postoperative commotion are often relieved by spinal puncture; this also is efficient for the headache so often complained of. The type of intercranial injury encountered in this group resembled very closely the cases seen in civil practice; indeed, the comparison between civil and war surgery was closer in this type of case than in any of the others.

THORACIC INJURIES

Thoracic injuries were, generally speaking, of two types, those with and those without a widely opened chest cavity. Either may be associated with hemothorax of varying grades, but in nearly all, dyspnea and evidences of shock made diagnosis apparent on mere inspection. All of these patients were much benefited by preliminary shock treatment (heat, elevation of foot of bed, and salt solution subcutaneously or intravenously). A single hypodermic of morphin acted well for most of them. Immediate operation was not performed unless an open, gaping wound made interference urgent. Great relief was obtained by a tight dressing acting as a patch over the hole in the pleura.

One patient with two wounds of the upper anterior chest wall was operated on at once because of urgent dyspnea, cyanosis and signs of large hemothorax. The lower wound was first excised down to the place of entry in the seventh interspace; it was then closed completely in three layers. The upper wound was then exsected, 3 inches of the fourth rib being removed. A large collection of blood was evacuated by twice rolling the patient on his side. The upper lobe of the lung was then brought into view through the aid of wide retraction. Two small holes were identified and found not to be the source of hemorrhage. Several splinters were removed from the third rib, ether was poured into the chest cavity, and then three layers of sutures (pleura muscle, fascia and skin) gave an air-tight closure. Several of the penetrating wounds required no intrathoracic manipulation; in these, treatment consisted of exsection of the soft parts, ether cleansing, layer suture and a small drain.

Reeffusion is treated by aspiration, if dyspnea is marked; if not, it is allowed to subside spontaneously. Emphysema of the chest wall was of common occurrence, but it regularly subsides without interference and is of no importance. In cases in which the foreign body has not been removed, fluoroscopy should be employed as soon as practicable. Secondary removal of embedded fragments (preferably under the fluorescent screen method of de la Villon and others) should not be practiced until the stage of subsidence is reached, unless there are strong indications to the contrary. The ease with which the lung can be drawn through the chest wall is very striking. The line of approach should be chosen to avoid getting too close to the pectoral fold, and for that reason it is often better to enter the cavity through a special opening so placed that the necessary inspection of the inner wound of entry may be made. The pneumonia these patients subsequently develop is often associated with effusion; but, as stated, the latter needs attention only if respiration is greatly embarrassed or signs of infection appear. A number of our patients had wounds in the scapular region leading to the chest cavity in the upper or posterior portions; all of these went on to recovery without intrathoracic intervention. For the first three days after the operation all the patients had high temperature, rapid pulse and respiration; many of them also had mucosanguineous expectoration and more or less frank signs of pneumonia. A semiseated position was found to give great comfort. Morphin or codein was used as required, respectively, for restlessness, pain or cough.

ABDOMINAL INJURIES

Abdominal injuries were of two main types, one in which the abdomen was penetrated directly through the parietes, and one in which the penetration was indirect as from the lumbar, gluteal or other regions. These patients usually entered in a state of shock; the majority of them had vomited; all had abdominal rigidity and localized tenderness more or less marked. The diagnosis in the first type was perfectly apparent; in the second, diagnosis was usually made after the wound traject had been followed far enough to show that it led to or in the direction of the abdomen. Our experience has made us very chary of ruling out the possibility of associated abdominal injury in any wound of the lower lumbar or gluteal region if the shock seemed disproportionate to the site and general appearance of the wound, and if there was complaint of abdominal pain with or without rigidity or local tenderness.

Several of our patients entered with a diagnosis of wounds of the gluteal or lumbosacral regions; at operation these wounds were found to lead intra-abdominally, requiring laparotomy. One of my patients had a wound of the sacral region with a fracture of a sacral arch leading to the abdomen; a laparotomy revealed no intra-abdominal lesion, and the foreign body was removed retroperitoneally from the region of the iliac wing. This patient had a fracture of a spinous process and two arches of middorsal vertebrae without intraspinal injury.

When laparotomy becomes necessary, it seems wisest to enter the abdomen by the route that will most efficiently bring into view the viscera supposedly involved. For this reason the original wound of entry is not often well placed, however large it may be, or however tempting approach through it may appear to be. The classical medial incision or those through or at the side of the rectus are of great value; but the operator must be prepared to make incisions far longer than anticipated, often, indeed, nearly at right angles to the original line of approach. Patients with massive intra-abdominal hemorrhage rarely reach the operating table so that the great majority are examples of more or less slow bleeding from wounds of the liver, stomach, spleen and intestine. The wounds are often multiple, requiring long, careful, methodical search. As in civil practice, it is well to remember that the stomach may still retain all its contents, even though there is a large sized hole in its upper half.

In any case in which there is even a fair suspicion of intra-abdominal entry, it is much the safest rule to perform laparotomy at once. Contusion of the intestinal wall without definite tearing is a puzzling problem; if the wall is dark and lusterless, then it seems better to resect in view of the possibility of subsequent gangrene or infective necrosis. I am reasonably certain that my failure to resect in one case was in great part responsible for the fatal outcome in a case of this type showing a perforation of the stomach and a long contusion of the descending colon. Drainage should not be used unless the original wound is made the zone of approach; then the drain should be used only to prevent the formation of a hematoma of the soft parts, assuming, of course, that adequate exsection of damaged tissue has been possible.

JOINT INJURIES

Penetrating wounds of the knee joint were relatively frequent, and next, penetrations of the elbow, wrist, shoulder and ankle joints. The routine treatment was exsection of the traject, exposure of the joint, irrigation with ether, removal of all foreign material (including blood), adequate hemostasis, lavage with ether, closure of the joint coverings, the soft parts and the skin in three separate layers, and draining subcutaneously when reaccumulation of blood was feared, but not otherwise. In the knee, lateral approach was preferred by a single vertical incision alongside the patella, and if that did not suffice, a similar incision was made also on the opposite side. In no case was it necessary to make the so-called U-incision by which the patella tendon is divided close to its attachment to the tubercle of the tibia. Before closure, all joints exposed were examined in a position of flexion as well as extension. If fragments of bone were loose or detached, they were removed; otherwise they were curetted and allowed to remain. Postoperative splintage was used in the knee cases for three days, but passive motion was commenced within twenty-four hours and continued daily. After the splint had been removed, a pillow was placed under the knee and each day raised higher until a right-angled position had been attained, and then the height was gradually decreased until full extension was reached. After the sutures had been removed (from eight to ten as a rule), active gradually increasing motions of the joint were insisted on; if reaction occurred therefrom, the joint was kept quiet until such evidences disappeared. In no case was it necessary to perform postoperative aspiration for reeffusion. The knee cases did better than the rest, the elbow better than the ankle or wrist. The proximity of exposed tendons, as in the ankle or wrist, seemed to introduce a complicating element of tenosynovitis.

BLOOD VESSEL AND NERVE INJURIES

Injuries to the blood vessels and nerves were not especially numerous. There was one case of injury to the popliteal vessels requiring ligation, and subsequently, amputation of the upper thigh for gangrene. A case of injury to the brachial vessels also called for ligation, and the next day amputation at the shoulder joint became necessary because of gas gangrene, and death followed. Both of these patients entered with a tourniquet, which had been in place eight and four hours, respectively. Several patients had marked bleeding from the vessels, especially the veins in the region of Scarpa's triangle. In the calf, the posterior tibial and its branches were occasionally involved. When a main vessel had been affected, experience taught us to be exceedingly careful to exsect adjacent soft damaged parts widely, and in all cases it seemed much wiser to leave the wound entirely unsutured.

The nerves most affected were the ulnar, median and peroneal. When possible, immediate suture was attempted; and in all, splintage was so arranged to prevent the anticipated contracture.

FRACTURES

Fractures were designedly assigned to another formation, and those treated by us were complications of severe injuries to soft parts with and without hemorrhage. The scapula was most often involved, next the skull (frontal and parietal), and then the ribs, the bones of the forearm and the leg. In all instances, the entirely detached bony fragments were removed, while the others were allowed to remain after thorough cleansing and curetting. Primary complete suture of overlying soft parts was attempted if the conditions permitted (see below), and suitable splintage was applied. If the involved bone was close to the surface (as in the crest of the tibia and the spinous process of the vertebrae), healing seemed to be much interfered with. Otherwise convalescence was almost as uneventful as if the bone had been undamaged. A detached bony fragment appears to be in effect a foreign body, just as potentially troublesome as a retained shell fragment; for this reason, the removal of the one is as necessary as the removal of the other.

Joint fractures were treated after the manner of joint injuries, and no permanent splintage was used unless the line of fracture was extensive or involved more than the articular surfaces. One such case affected the external epicondyle of the humerus to the extent of pulverizing it, splitting also the head of the radius (seton type of wound). The bony fragments were removed from the humerus, the joint was closed, the soft parts and skin separately sutured, and the elbow was placed in a position of hyperflexion. Primary union was obtained.

SUPERFICIAL INJURIES

Superficial injuries were found to be exceedingly deceptive in that the size, source, site and general appearance of the external wound was no accurate gage as to the extent of the underlying damage. For purposes of classification, all such wounds in order of frequency may be said to be penetrating, seton type (wound of entry and exit), tangential (gutter shaped) or superficial (practically abrasions). All were subjected to the routine of exsection of the skin at the place of entry and exit, care being taken to remove only a slice of skin, as that is adequate. The skin incision is then enlarged so that the damaged underlying parts are brought fully into view. Frayed, bruised or discolored tissue is then removed, in a wedge shaped mass when possible, the whole traject being thus treated. Under guidance of the eye, the foreign body is thus brought best into view, and no attempt is made by finger search to reach the missile unless the traject is lost to view. The finger or an instrument readily makes a false track and greatly interferes with the essential idea of complete exposure of the traject under the guidance of vision—*ouvert à ciel* (open to heaven) as the French so aptly term it. Not a fiber of damaged tissue should be left behind, muscle and fascia being especially well removed. All loose or hanging edges should then be trimmed away, and hemostasis made as rigid as possible after the foreign body, including all important clothing or dirt, has been removed. The entire cavity is then flooded with ether or some other chosen antiseptic; ether was used by us because of its antiseptic and hemostatic qualities, and also because it left no residue after evaporation. It has been demonstrated to be very efficacious in destroying gas gangrene organisms so prone to lurk in muscle tissue.

The treatment thus accorded is fundamental, is the basis of all treatment for war wounds, and is the essential element of success. Suture of the deeper layers was not made unless muscle or fascial layers had been cut transversely; in such an event, interrupted catgut stitches were inserted freely enough to coapt without tension. The skin was brought together by interrupted stitches of silk or silkworm-gut. These successive steps are called by the French *excision* (cutting away), *débridement* (removing débris), *épluchage* (peeling or plucking away), *hémostase* (hemostasis), and *suture* (suturing).

There are two plans to carry in mind so far as final healing is concerned, these depending on (*a*) the time elapsing between the receipt of injury and arrival at the hospital, and (*b*) the type site and extent of the lesion. We may aim first for primary suture (*suture primitif,* or *suture primaire*); second, for delayed primary or primosecondary suture (*suture primitif retardée*), and third for secondary suture (*suture secondaire*).

Primary suture should be undertaken only in selected cases, namely, those received within the first twelve hours of injury, those in which complete excision, débridement and removal of the foreign body can be made, and those in which subsequent hematoma formation is unlikely. The classes of wounds denominated above as seton, tangential and superficial most readily lend themselves to this class of treatment. It is very unwise to attempt primary suture unless the patient can remain at least seven days under direct observation. Wounds of well muscled parts, like the thigh, hip and calf, are dangerous to close completely. Any wound showing much fraying or bruising of tissues should not be subjected to tight closure. Damage to main vessels is an absolute contraindication to primary suture; likewise the preliminary use of a tourniquet makes tight suture altogether unsafe. In a general way it can be said that primary suture is a method to be attempted only after reasonable experience with other methods.

A modification of complete suture is adapted to that class of cases in which one angle of the wound is left open for drainage; this may be termed partial primary suture (*suture primaire partielle*). If rubber tubing drainage is used, it should be removed not later than forty-eight hours later because of the necrosis induced, especially at the edges of the skin. A few strands of "crin" makes an excellent drain; gauze should be used only when oozing is to be controlled or wound-edges are to be designedly held apart.

Delayed primary or primosecondary suture implies that all the steps of treatment are given as in primary suture except that suture has not been made, either because the patient was not received within twelve hours or there was doubt as to the propriety of immediate suture, or the rush of work prevented completion of the work. Accordingly, a sterile dressing is applied, and within the succeeding three to six days the final step of suture is accomplished, provided infection has not meanwhile developed. This is a safe method; it practically brings about cure as rapidly as if the initial steps had been complete; it is the method of choice in a great many instances. This procedure has the added merit of making transport from one hospital to another relatively free from danger. Some of these cases can be sutured by the use of local anesthesia, others by the aid of ethyl chlorid anesthesia; some even require only strapping by adhesive plaster. This procedure is to be strongly commended because it is surgically safe and adequate.

Secondary suture is adapted to those cases in which infection has developed and has been brought under control by means of antiseptics. The best time for this sort of closure is usually between the tenth and the sixteenth day if the bacterial conditions permit. The granulations should be disturbed as little as possible, but the edges of the skin should be shaved off and the skin margins undermined enough to bring about union without tension. Drainage should be used only if oozing cannot be controlled; in such an event a few twisted strands of "crin" will prove adequate.

The first and second methods rely for their efficiency on the complete mechanical removal of all sources of infection through the agency of the scalpel or scissors; the third method is effective because infection is removed by chemical means. The two great sources of infection to be feared are the streptococcus and gas gangrene (*Bacillus perfringens* of the French) invasions; a latent infection by the latter is less likely to prove harmful than the former, for this organism is known to exist in a relatively nonvirulent form in many cases. Secondary suture should not be undertaken except under strict supervision if either of these organisms (especially the streptococcus) is demonstrated to be present. The bacterial count is an accurate guide to the time for suture, but for practical purposes a clinically healthy wound will heal kindly in the vast majority of cases even in the presence of an occasional streptococcus.

Whatever method of suture is chosen, there is usually a rise of pulse or temperature for the first forty-eight hours; a rise of pulse or temperature to 100 is in fact the rule rather than the exception. The wound edges may sometimes appear puffy and reddened in this initial interval, but a wet dressing of saline solution will usually cause a subsidence of these signs. If infection does appear in a sutured wound, the removal of one or two stitches may afford drainage enough to allow of subsequent healing. and all the stitches should not be removed unless the signs are marked or bacterial examination shows streptococci, assuming, of course, that no general signs of infection appear. If no infection appears at the end of the third day, healing is quite likely to terminate satisfactorily.

Keeping the parts at rest by the aid of a splint is an added factor of safety; splintage is all important to counteract threatened contracture when nerve or muscle injury complicates. In this connection it is important to note before operation what evidences of neural damage exist. Preoperative examination is much needed in multiple injuries to determine which injury demands most immediate attention, and the wound apparently requiring the longest attention should be first treated, so that the patient may not become too severely exhausted. Other things being equal, except in the case of hemorrhage, a wound nearest to a main cavity or joint should receive first attention. When possible, two surgeons should operate at the same time on a patient with many wounds, opposite sides of the body being chosen so that one operator may not interfere with the other. An overhead frame of metal or rope will be found a great convenience to support limbs, thus doing away with the need of an orderly for this purpose.

Our experience abundantly showed that subsequent infection was directly proportionate to the success of the initial excision of damaged tissue. In other words, infection in cases in which operation had been performed indicated that the removal of involved soft or hard parts had not been radical or early enough.

The routine after-care consisted of daily dressings of gauze soaked in saline solution or eau Mencière, the latter consisting of guaiacol, 500 gm.; benzoic acid, 100 gm., and alcohol, 400 gm. Ten gm. of the foregoing to 1 liter of sterile water made the solution ready for use. When the granulation stage was still further advanced, a spray of Mencière's solution was often used. The formula of this is: iodoform, guaiacol, balsam of Peru and eucalyptol, of each 10 gm.; alcohol, 100 gm., ether, enough to make 1,000 gm. Not only are these Mencière preparations antiseptic, but also they provide the necessary nonadhering qualities so desirable. Hypochlorite solutions were not used because our available supply was exhausted. The Carrel technic was used in a few cases in which intermittent instillation was needed to control spreading infection.

Two cases of gas gangrene developed, one in a case of multiple wounds of the thigh and abdominal viscera, the other in the already mentioned case of severance of the brachial vessels and subsequent amputation. Both of these patients had tourniquets applied for several hours prior to admission. In the English army the tourniquets have been wisely abandoned, and there seems to be no good reason why bleeding vessels cannot at least be clamped in the dressing stations even if the hemostats are included in the dressings and ligation omitted in the press of work. The danger of the tourniquet is not only because it robs the tissues of main blood supply, but also because the muscles are thereby extensively bruised, ischemia occurs, and minute hematomas are induced at a long distance from the original focus, all combining to make exactly the prerequisites for gas gangrene infection. In our cases of injury to the main vessels we invariably found the involved vessels blocked by clots so that hemorrhage did not usually occur until reasonably wide exposure had been made.

We found it wise to cut out fascia at right angles, especially the fascia lata, so that it would not unduly constrict underlying muscle. The interlacing gluteal muscles require extensive excision to provide adequate approach and drainage. So much oozing is thus induced that gauze drainage was more often needed in this region than in any other; to a lesser degree the same pertains to the muscles of the upper thigh. Any wound of the femoral region must be approached with care because the vascular supply is so ample that troublesome bleeding is likely to be encountered. One of our French confrères called our attention to a simple approach to the often involved posterior tibial vessels. An incision is made exactly in the middle of the calf, the gastrocnemius is cut through, exposing the soleus, and this also is incised, bringing into view the vessels sought for.

A review of the anatomy of the arm, forearm, thigh and leg is helpful and necessary, for at any time the operator may be confronted by a wound of known entrance but of unknown direction. Missiles never seem to traverse the same route in any two cases; but one rule as to their direction seems fairly constant, namely, that occasionally a ridge or point of tenderness gives fairly reliable information as to the route traversed. The larger the foreign body, the more easily is it removed, the better the chances for adequate extraction, and the less the consequent infection unless main vessels have been damaged. If a foreign body cannot be removed, it is unwise to suture unless adequate drainage can be provided, unless it is definitely known that the missile is small, lodged in an unimportant place, and that sufficient excision has been made. Unremoved foreign bodies are best removed about the third day, at which time primosecondary suture can be made. This removal is often possible by means of forceps introduced under the guidance of the fluorescent screen (method of de la Villon and others). In this manner I removed a tiny fragment from the lateral process of the fourth cervical vertebra after an extensive dissection had been made in vain three days before. The wound had been left lightly sutured with ample drainage, and primosecondary suture gave a line of union quite as good as if primary suture had been done at the first sitting.

Amputations were exceedingly uncommon; those that were necessary were of the "chop" variety, in which the bone was cut just above the level of the soft parts, the entire wound being left widely open. In this type of case, and in many wounds of the soft parts, adhesive plaster strapping does much to bring about coaptation.

SHOCK AND HEMORRHAGE

Shock and hemorrhage are difficult to differentiate, indeed, often coexist. As a general rule, patients with shock begin to show rapid improvement as soon as the much needed external heat has been applied. The importance of having well heated beds cannot be overestimated, and the addition of a cradle from which electric bulbs are suspended is of great value. A special hot room (*cellule chauffante*) for patients with shock is absolutely necessary. Some special member of the staff should be ready at all times to administer necessary intravenous stimulation. Most of our fatalities from shock were due to intra-abdominal hemorrhage in those cases regarded as inoperable, and so proved to be by necropsy. There were no instances of secondary hemorrhage in our series. We found that our patients readily absorbed large quantities of fluid introduced by rectum.

TETANUS ANTITOXIN

Tetanus antitoxin had usually been administered prior to the arrival of the patient; but if not, it was immediately given. All patients had a second dose of tetanus antitoxin between the tenth and the fourteenth day. A great many of the injured developed a skin reaction about the fifth day after the first dose.

SUMMARY

During twenty operating days, 132 patients were operated on, 176 interventions being made; the latter indicates that approximately 30 per cent. of the injured had more than one operative condition. There were 8 laparotomies (4.6 per cent.), 10 craniotomies (5.8 per cent.), 3 thoracotomies (1.7 per cent.), and 4 arthrotomies of the knee (2.3 per cent.). This indicates that approximately 15 per cent. of the cases were of the preceding variety.

The remaining 107 cases (approximately 85 per cent.) can be included under the general term "injuries of the soft parts," it being borne in mind that this grouping includes wounds of the smaller joints, fractures, ligation of vessels, neural injury, spinal fracture, and all the others strictly limited to "soft parts."

Regionally considered, the parts most affected were: gluteal area, 27 cases; arm area, 17 cases; forearm area, 13 cases; shoulder area, 12 cases; chest area, 9 cases; thigh area, 9 cases; calf area, 7 cases. There were nine deaths in 132 operated cases, a mortality of 6.8 per cent.

The cause of death was: intra-abdominal with visceral lesions, 4; intrathoracic with hemorrhage, 2; intracerebral with hemorrhage, 1; amputation (arm) for gas gangrene, 1; gluteal area with hemorrhage, 1.

The patients were operated on and cared for by two teams of American surgeons composed of four members, and we found for practical purposes that it was safe to count on being able to operate on twelve patients in the allotted ten hours of operative service. However, in one period of great activity, both American teams, operating simultaneously, operated on thirty patients in seventeen hours' continuous service.

Ether was the anesthetic of choice, preferably given in the Ombredain inhaler or on a mask (open method); the former is an excellent apparatus because it can readily be operated by more or less inexperienced persons. Incidentally, the side piece can be removed, a cork with two glass tubes inserted, and then it is ready for use with ethyl chlorid as the inhalant; this is a safe and very satisfactory anesthetic for operations not requiring longer than fifteen minutes, and there is no postoperative shock or vomiting. In the first few days of our experience, Major de Tarnowsky and I were the only surgeons available, and we found it necessary to use chloroform because the electricity had been cut off, and candles and lamps were used to light the operating room, making it unsafe to use ether.

CONCLUSIONS

1. No patient should be operated on until thoroughly warmed, unless bleeding is uncontrollable.
2. Patients arriving with a tourniquet, with or without severing of main vessels, are bad risks in that gas gangrene is likely to have already developed. In no instance should the wound in such cases be closed.
3. An unusual rise of temperature or pulse, especially if associated with restlessness, demands immediate investigation, as these signs often indicate the onset of gas gangrene.
4. Persisting high temperature and pulse almost invariably mean that the wound is not doing well, unless pneumonia or some other acute systemic condition can be positively demonstrated.
5. Freedom from subsequent infection is directly proportionate to the removal of damaged tissue.
6. Persisting shock usually indicates hemorrhage.
7. Ether has demonstrated an unusual efficacy when employed to lavage wounds during and after operation, especially when much muscle tissue is involved.
8. Postoperative dressings should not be dry for the first few days at least; moist dressings are of proved value in the early stages.
9. Drainage will cause infection if used for more than forty-eight hours, especially if rubber tubing is used in parts subjected to movement, notably the region of the abdomen or chest.

OPERATION FOR EMPYEMA

A PRELIMINARY REPORT COVERING AN OBSERVATION ON ONE HUNDRED AND FIFTY-FIVE CASES

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This report is based on an observation covering 155 cases of empyema resulting as a sequel of the 1,300 cases of pneumonia treated at the Camp Pike base hospital and reported in Major Arthur Small's[1] paper. From the date of the organization of the hospital, all medical officers were instructed to examine pneumonia patients carefully with the idea of determining the presence of pus in the pleural cavity. To this end soldiers suffering with this disease were as a routine roentgenographed at the end of fourteen days after the onset, if the stage of convalescence was not well established at that date. Whenever roentgenoscopy disclosed possible signs of fluid in the pleural cavity, aspiration, under strict aseptic technic, was carried out. If as a result of this aspiration macroscopic pus was present, or the fluid examined in the laboratory showed pus organisms, surgical intervention was immediately instituted.

On admission of these patients to the surgical service, blood cultures are taken, roentgenograms and examinations are systematically and repeatedly made, and fluids aspirated from the pleural cavity are investigated in the laboratory.

The bacteriologic findings which are based on an examination of the pleural fluids, since the blood cultures were practically all negative, show the *Streptococcus hemolyticus* in 101 cases and the pneumococcus in twenty-five. Type I was found in two cases,

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[1] Small, A. A.: Pneumonia at a Base Hospital, The Journal A. M. A., this issue, p. 700.

Type II in seven, and Type IV in six. Seven cases were not agglutinated.

In our early experience the operation of costectomy or thoracotomy was performed practically as a routine, though in a few cases aspiration was carried out and 2 per cent. formaldehyd solution in glycerin was injected into the pleural cavity. In the drainage cases, as a rule, Brewer's tubes were used. In some of these cases negative pressure was produced by means of Woulfe's bottles, while in others drainage was carried directly into large bottles containing a very weak mercuric chlorid solution. In many of these cases the pus was found in separate compartments of the pleural cavity. Of especial interest were the pus pockets formed in the following position: the lateral wall on the right side formed by the mesial surface of the lung from the diaphragm to the apex of the lung, the left wall below by the pericardial sac, above by the mediastinal space, and in front by the anterior flap of lung, which became adherent to the costal pleura in this position, thereby burying the pus deep in the thoracic cavity about the root of the lung. Cavities containing pus formed in a corresponding position in the left pleural cavity.

METHOD OF DRAINING SUBSTERNAL INTERPNEUMONIC PUS CAVITIES

In order to drain these cavities, an operation was devised in which 3½ inches of the fourth rib was resected and retraction was produced so that the gloved finger might sweep over the anterior border of the lung into this space. This anatomic location was selected because through an incision at this point pus pockets may be reached anywhere between the diaphragm and the manubrium sterni. In the last case of this type, drainage was performed by a rubber catheter introduced through a trephine opening made in the middle of the sternum between the third and fourth costal junctions. At this point the operator can enter either the right or the left pleural cavity.

Observation of this group of cases gave us a number of reasons for not opening the pleural cavity. We were led to this conclusion particularly by our experience in aspiration and the injection of solution of formaldehyd in glycerin into the pleural cavity. Because of the extent and virulence of empyema at Camp Pike, the following plan was decided on, and I here quote largely from the May report on this subject to the Surgeon-General's Office.

In the early part of March it was deemed advisable to investigate this disease very carefully and extensively, and to that end a team was formed for that work. This group at the present time is made up of the chief of the surgical service, who acts as director and is in daily consultation with members of this group, particularly in consultation in the operating room, empyema wards and laboratory, and the following members, who devote practically all their time to this subject: Lieuts. V. P. Diederich and H. D. Van Schaick of the surgical department; Lieut. H. L. Goss of the roentgenology department; Lieut. Charles G. Beall of the medical department (consultant); Lieut. S. Hoge of the laboratory department; Miss Rathjen (bacteriologic assistant), and Miss Russell, an especially trained nurse.

NEW PLAN OF OPERATIVE PROCEDURE AND RESULTS

Twenty-five patients have been operated on since April 1, with one death, and the prognosis for the recovery of those remaining is excellent. In the fatal case the patient was operated on according to the old plan of costectomy. Mention is made of this fact, as in none of the nineteen cases reported in this group in which operation has been performed by the new plan have any patients died. In addition to the treatment outlined in the March 22 report we have made one change, to which reference is made in the previous sentence as the "new plan." To this type of operation I wish to direct especial attention; namely, the draining of the pleural cavity, irrespective of the character of the pus, by means of a No. 14 French rubber catheter, introduced by means of a trocar and cannula, just large enough to thread the catheter into the pleural cavity. The catheter is then connected with a 100 c.c. glass syringe; and aspiration is intelligently and carefully carried out. If the pus is too thick for aspiration, a small amount of neutral solution of chlorinated soda (Dakin's solution) is allowed to run in. This solution quickly liquifies the pus, so that by repetition of this procedure the entire cavity is emptied. The cannula is withdrawn, leaving the catheter in place, and one-half the number of cubic centimeters of Dakin's solution are allowed to run into and remain in the pleural cavity as correspond to the quantity of pus aspirated during the operation. The process of aspirating through this catheter and the instillation of Dakin's solution is repeated by a trained ward surgeon three times a day, and two times during the night by an especially trained nurse. When by examination, either physical, by the roentgen ray or by aspiration, separate pockets of pus exist, this same procedure is followed. The last nineteen patients in this group have been treated by this method, and I am firmly convinced that this plan of procedure is a marked improvement over any type of operation that has been performed in our experience at this camp.

OUTLINE OF WORK BY EMPYEMA TEAM

A weekly routine meeting of the group is held at which the general plan of procedure is outlined so that individual effort may not be expended in a futile manner.

From the bacteriologic standpoint the following control is being attempted: A graduated pipet of pus is taken from the pleural fluid aspirated at the original operation. This pus is plated and cultivated; subsequently colonies are counted, from these figures the number of organisms is computed, and then a comparison is made with a parallel procedure repeated every twenty-four hours. Cultures are made to determine whether either aerobic or anaerobic organisms are present. These routine bacteriologic examinations constitute a definite and accurate method of control in determining the value of this form of surgical procedure in preventing the introduction of other bacteria into the pleural cavity. If mixed infection occurs, it will be immediately noted in the colonies on the plates. At this date no mixed infections have been found in the laboratory following this new type of operation. The size of the cavity is measured by determining from day to day the amount of fluid used to fill it. By this means some information is gained respecting the rapidity with which the cavity is being obliterated.

The roentgen-ray member is experimenting on shadows being formed by various solutions that might, without deleterious effect, be injected into the pleural cavity. Such a solution would give some index of the size, shape and location of the pus cavity. It may be said, by way of explanation, that barium or bismuth cannot, at least by the ordinary methods, be used for this purpose, on account of the inability to get it out of the pleural cavity through the small opening made by the catheter. Solutions of potassium iodid, sodium iodid, weak solutions of silver salts and other substances are being investigated by roentgenologic methods. In the event of any of these solutions being considered favorable, some experimental work will be done on dogs and other animals before the solutions are used in the empyema service.

BENEFITS OF OPERATION

1. It is distinctly a minor operation.
2. It minimizes the possibility of contaminating the pleural cavity from without.
3. The lung is not as completely collapsed as in the operation of costectomy or thoracotomy.
4. Treatment can be repeated at definite intervals and an accurate account kept of the amount of pus aspirated. A comparison of the quantity and character of the pus coupled with the bacteriologic findings from day to day enables one to establish a favorable or unfavorable prognosis.
5. The distressing sinuses are not as likely to follow, though not sufficient time has elapsed to permit a definite report on this phase of the operation.
6. Pus from dependent portions of the pleural cavity can be completely evacuated by this method.
7. Solidified pus cannot form under the influence of the reaction of Dakin's solution used in the irrigation.
8. Danger of injury to the lung from the use of the aspiration needle is overcome by the rubber catheter.
9. In suspected lung abscess, communicating with the pleural cavity, its presence is determined after the introduction of 10 c.c. of the irrigating fluid, by the patient immediately having an irritating cough and noting the taste of the fluid in his mouth.

The work on empyema, under the foregoing plan, is placed on an intelligent and scientific basis. The results reported in this paper are largely dependent on the continuous attention given these patients, particularly a very rigid surgical technic in the surgical operations and subsequent surgical dressings.

REPORT OF A SEVERE CASE OF *EPIDEMIC MENINGITIS* TREATED BY THE COMBINED INTRAVENOUS AND INTRASPINAL ADMINISTRATION OF ANTIMENINGOCOCCUS SERUM

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Captain, M. R. C., U. S. Army
CAMP LOGAN, HOUSTON, TEXAS

Lieutenant M. was admitted April 25, 1918, and a diagnosis of epidemic meningitis was confirmed by laboratory methods. He was given 30 c.c. of antimeningococcus serum intraspinally daily for seven consecutive days with but slight improvement. On the seventh day he was given 30 c.c. of undiluted serum intravenously, and the same amount on the following day combined with the same sized dose intraspinally.

The patient showed marked improvement, but developed a severe anaphylaxis. No more serum was given for two days, nothing being done during this time except the withdrawal of from 60 to 80 c.c. of spinal fluid to relieve pressure.

On the eleventh day the patient was seized with a hard chill followed by a rise in temperature to 103 and all the former symptoms. The spinal fluid again became cloudy. He was given 15 c.c. of serum intraspinally, and one hour later 60 c.c. were given intravenously diluted with an equal amount of sterile sodium chlorid solution. This was repeated on the twelfth day. The fluid cleared and has remained so since. There was a marked and severe reaction from the last two doses; there were three or four convulsive seizures and involuntary voiding of urine and feces, followed by a severe arthritis and erythema. This lasted for four days. The temperature reached 104 and the pulse 160. The patient was given digitalis internally, and an ice bag was applied to the precordia with good results. He is now well on the road to recovery, with a partial paralysis of the right external rectus muscle which is improving under potassium iodid, 0.65 gm., three times a day after eating. He has a soft systolic murmur with reduplication of the second pulmonic sound over the pulmonary area, which we think is purely functional.

The patient was given a total of 540 c.c. of serum and received eighteen spinal punctures.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

CHLORAMINE-T.—Sodium Paratoluenesulphochloramide. —$CH_3.C_6H_4.SO_2NaNCl+3H_2O$, 1:4.

Actions, Uses, Dosage, Physical and Chemical Properties. —See New and Nonofficial Remedies, 1918, p. 156.

Chloramine-T, Squibb.—A brand of chloramine-T.

Manufactured by E. R. Squibb and Sons, New York. No U. S. patent or trademark.

Chloramine-T Surgical Paste-Squibb.—It contains chloramine-T 1 Gm. in 100 Gm. of a base composed approximately of sodium stearate 15 per cent. and water 85 per cent.

Chloramine-T Tablets-Squibb, 4.6 grains.—Each tablet contains chloramine-T 4.6 grains.

DICHLORAMINE-T. — Paratoluenesulphonedichloramide. $CH_3.C_6H_4.SO_2NCl_2$.—The dichloramide of paratoluenesulphonic acid, $CH_3.C_6H_4.SO_2OH$.

Actions, Uses, Dosage, Physical and Chemical Properties. —See New and Nonofficial Remedies, 1918, p. 157.

Dichloramine-T, Squibb.—A brand of dichloramine-T.

Manufactured by E. R. Squibb and Sons, New York. No U. S. patent or trademark.

Patriotic Work.—The Children's Bureau, U. S. Department of Labor, states that the drive for better play and more inspiring out of school activities for children is on. Plans are rapidly developing in the states to make this recreation drive count for increasing the health and vigor of the boys and girls of the United States. One purpose of the drive is to make more plain that the vigor of young people can be gaged by their ability to perform certain game tests and that their health can be increased by wholesome play. Although play is instinctive with children many of them have never learned to play with other children, and need to be taught to take their part in group games. Such games teach the spirit of cooperation and team work, and develop the ability to make quick decisions demanded by the needs of the game. Boys and girls are beginning now to fit themselves for the tests by playing the games which develop special muscular agility. A leaflet telling how to play twelve good games, and showing just how they will help to make the children stronger can be secured on request from the Playground and Recreation Association of America, 1 Madison Avenue, New York, which is cooperating with the Children's Bureau and the Woman's Committee in the plans for the recreation drive of children's year.

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SATURDAY, AUGUST 31, 1918

UNIFORMITY IN MORTALITY STATISTICS

It is hardly necessary to point out the great advantages to the public health involved in a correct and uniform system of reporting deaths, and yet one can hardly turn to a table of official mortality statistics without being perplexed by the need of reinterpretation of the data presented. A number of current controversies, such as that on the alleged increase of cancer, hinge very largely on the correct evaluation of reported causes of death. Some of the sources of error are at present unavoidable. As is well known, there are some certified causes of death, such as "influenza" and "rickets," in which the margin of error is so great that they are considered unacceptable as statements of the cause of death unless confirmed by necropsy.[1] It is well known also that the diagnosis of some pathologic conditions is difficult at the best, that under some conditions, as in gastro-intestinal maladies in the tropics, the uncertainty is greater than under others, and that improvements in diagnostic methods are steadily making the reported causes of today less comparable with the reported causes of a few decades ago.

If a large measure of the uncertainty in mortality data is unavoidable, it is nevertheless true that death records can be simplified and made much more useful by uniformity in nomenclature and in methods of reporting. The framing of the International List of Causes of Death was a step in this direction; but, as pointed out by the committee already referred to, such a list "necessarily contains many terms that are unscientific, inaccurate and indefinite, as well as some that are obsolete." As experience in registration offices has shown, it is necessary to eliminate some of the terms from such a list and to use great caution in accepting others without necropsy or without supporting data, such as the finding of a specific microbe.

For some diseases it is possible to secure valuable data by simple uniformity in reporting. In death following measles, for instance, the report to the health officer might fail to distinguish between the primary and the secondary cause of death. Some physicians might report the death as due to measles, others as due to bronchopneumonia. Unless the occurrence of measles is specifically mentioned in the report, the connection of a death from bronchopneumonia with a case of measles would not be known at the health office. Comparison of the death rates from measles in communities where different modes of reporting were customary might hence be very misleading, and so might the apparent degree of fatality from measles at different periods in the same community. Nearly one fourth of the deaths reported from "pneumonia" in the registration area of the United States are not differentiated as between the lobar or broncho type, and the tables do not indicate whether pneumonia was the primary cause of death or occurred in the course of or following some other disease. The difficulty here would seem largely due to methods of recording. Since correct data on the occurrence of disease and the cause of death must constitute the basis for much of our public health work, more emphasis should be laid on uniformity in death reports both by health authorities and by the teachers in medical schools. The organization of the medical work in the Army encampments with reference to pneumonia and measles will doubtless do much to bring home to physicians the importance of uniformity in records in these and other diseases. Otherwise no proper comparisons of conditions and results are possible.

THE SCIENCE OF NUTRITION AND THE ARMY

The necessity for the scientific handling of our food supply no longer needs any argument in its favor. The day of haphazard methods and laissez faire policies has passed. A writer recently remarked that the personnel of the Food Administration is only another of the many proofs which we are having that there is no talent so superior that it does not gladly turn all that it has to the use of the country. We have lived to witness a supposedly intractable land of liberty respond to restrictive food regulations with a spirit of readiness that must have been fortified by a confidence in their safety and wisdom. The gospel of using our food wisely in economy has become firmly established among the people. Nevertheless the organization of a division of food and nutrition in the Medical Department of the Army has been watched with uncertainty as to its success by more than one champion of universal conservation. Has not the rationing of the Army been the uninvaded province of the quartermaster for generations? Who, then, shall presume to interfere with the orderly conduct of this supply department?

Yet the unexpected has happened, as has been the case so often in this war. Since last fall a group of food specialists — physiologists, food analysts and other nutrition experts recruited from the staffs of our educational and research institutions under the leadership of Major Murlin — have been making surveys of food conditions in the camps. These officers have studied the food served, how it is inspected, stored and prepared, and have made many recommendations which have been adopted with advantage. The presence of experienced students of nutrition has left an impress in the form of improved knowledge of dietaries and dietetic methods. Better still, however, has been the effect of this intelligent cooperation with mess officials on the reduction of waste, a feature which early aroused the criticism of the civilian conservationist, who looked with disgust and ire on the apparent lack of mess economy in some of the camps. According to a recent statement authorized by the War Department,[1] in a typical "surveyed" organization the edible waste per man per day was reduced from 1.12 pounds before the instruction to an average of 0.43 pound thereafter.

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[1] The Accuracy of Certified Causes of Death, Report of a Committee of the Vital Statistics Section of the American Public Health Association, Pub. Health Rep., 1916, **31**, 2539.

On the basis of the average saving of 0.69 pound per man per day, the economy would amount to $338,000 a year for a camp of approximately 15,000 men. The advantage of work of this character involving scientific advice about dietaries, inspections for adulteration, spoiling and deterioration, and cooperation with mess officers has become so apparent that sixty new officers similar to the specialists now in service are commissioned. Such are the conquests of scientific administration.

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[1] Nutrition Officers Stationed in the Camps, Science, Aug. 16, 1918, p. 159.

THEORIES REGARDING MEAT POISONING

The discovery by Gaertner in 1888 of a micro-organism, *Bacillus enteritidis*, in association with an outbreak of meat poisoning, gave a great impetus to the study of bacterial food poisoning. Since then many added instances of the finding of the same or closely related bacteria have pointed to the harm that may arise from most unsuspected sources in relation to edible products. In an earlier period it was widely assumed that in the decomposition of meats and other food products highly poisonous "ptomains" are formed, and that these were responsible for the observed cases of acute intoxication ascribed to food. Speaking several decades later, Jordan has summarized the trend of present opinion by stating that it is possible that cases of "ptomain poisoning" due to ingestion of ptomains or to their formation within the intestine sometimes occur in man, but that there is no doubt that such cases, if they occur at all, are very rare. Many of the epidemics of "meat poisoning" are now known to be due to infection with specific micro-organisms, rather than to the action of a formed poison. The alleged complicity of the ptomains remains to be proved.

Two kinds of bacilli are at present primarily associated with the production of meat poisoning: organisms of the type of Gaertner's bacillus and the anaerobic *Bacillus botulinus*, discovered in 1896 by Van Ermengem. The latter and its relation to those outbreaks of poisoning which have been described under the name of botulism have previously received detailed comment in The Journal.[1] In the case of true meat poisoning, the illness is unquestionably due in many instances to that group of micro-organisms now classified as paratyphoid bacilli, which includes the *B. enteritidis*. Paratyphoid fever may therefore be due to food poisoning in the bacteriologic sense.

The county medical officer of health for Somerset, England,[2] has recently pointed out that in spite of our greatly extended knowledge regarding food poisoning outbreaks, there is surprisingly little information as to the precise sources of infection. It has been alleged, for example, that the bacilli are of human origin, the food being infected with pathogenic Gaertner bacilli from a human source, such as a paratyphoid fever patient or a carrier of its infective organism. Again, since organisms culturally resembling paratyphoid bacilli are widely distributed in nature, it has been believed that many outbreaks of food poisoning are due to direct contamination with these sources, and particularly with fecal infection.

A third hypothesis is urged by Savage[2] as best explaining the available facts. He suggests that this type of food poisoning outbreaks is due to an infection of the food with virulent organisms of the Gaertner group, derived either from animals that are at the time suffering from disease due to such micro-organisms or from animals acting as carriers of these bacilli. Heretofore no direct connection of human paratyphoid fever with specific diseases of the lower animals has been certainly established. The probability of such a relationship hinges in part on the question as to whether or not the organisms of the meat-poisoning type actually occur frequently in the healthy human intestine and likewise in the alimentary tract of animals. Savage claims to have proved by extended direct examination that the Gaertner group bacilli are not natural intestinal inhabitants either of man or of animals used for human food or which come into contact with food. The instances, he argues, in which these bacteria have been found in such situations are rare, and they may be bacilli from some previous infection.

If these assumptions are established, it will be important to direct attention in greater measure to unrecognized disease in animals. At any rate, Savage[3] has not succeeded in showing the presence of any organisms belonging to the Gaertner group in the organs of calves and pigs passed as healthy and fit for human consumption. Perhaps when more is learned about the pathogenic organisms in relation to animal diseases—of which swine fever, calf septicemia, pyemia and enteritis in cattle, infectious abortion, etc., may be cited as illustrations—a nearer approach to the true explanation of the etiology of meat poisoning will arise.

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[1] Food Poisoning, with Special Reference to Botulism, The Journal A. M. A., Aug. 11, 1917, p. 472; Home Canned Foods and Botulism, Oct. 13, 1917, p. 1262.

[2] Savage, W. G.: The Sources of Infection in Food Poisoning Outbreaks, Jour. Hyg., 1918, **17**, 20.

[3] Savage, W. G.: Further Investigations of the Distribution of Gaertner Group Bacilli in Domestic and Other Animals, Jour. Hyg., 1918, **17**, 34.

THE ELIMINATION OF ZINC AND TIN

It is only in comparatively recent times that the possible part the intestine may play as a path of excretion has come to be clearly recognized and taken into account. The appreciation of the now undoubted fact of the excretory function of the bowel for certain substances has been due in largest measure, probably, to the studies on the behavior of iron. Thus it has been demonstrated that this element may actually be absorbed and used in the body, yet finally excreted with the feces. Indeed, little iron is ordinarily found in the urine, even when considerable quantities are introduced into the organism.

This story of the elimination of iron has already been duplicated for many of the heavy metals. The gastro-intestinal tract has been shown to be the main channel of excretion for lead, silver, nickel, mercury and bismuth, for example, the kidneys playing a very subordinate part. The latest studies of Salant[1] and his co-workers at the Bureau of Chemistry in Washington bring similar evidence of the fate of zinc in the body, the distribution of this metal in the tissues and its channels of excretion being similar to that of the heavy metals just enumerated. These are usually deposited in the liver in appreciable amounts.

According to the government investigators, the behavior of tin is somewhat different. Although the elimination occurs chiefly through the bowel, not inconsiderable portions of the quantity introduced into the body may find its way out through the kidneys. Information of this character has more than a passing interest so long as any of the nonphysiologic, that is, foreign heavy metals, however small their amount may be, find a way into the human body in everyday life. It is not merely in the industries that this may occur. A recent report on food products[2] shows that canned beans, for example, may contain more than 600 mg. of tin per kilogram. We cite this as an illustration of the unsuspected presence of the element rather than as an indictment against canned goods. Street[2] is responsible for the statement that the source of the tin is the tin container, the amount contained in the food depending in part on the age of the food and the storage temperature. In the case of beans, and similar slightly acid foods, he continues, the tin present in the canned product has been shown to be due in part in some cases to the amino bodies present. It has been erroneously assumed that the tin in canned foods was in solution. Bigelow,[3] however, has shown that the tin is largely, sometimes chiefly, in some insoluble form. Moreover, we are not justified in assuming that all of the tin found in the liquor even is in a soluble form, for it is quite probable that much of this is present as finely divided "insoluble oxid, hydrated oxid, or basic salt of tin." Furthermore, it is possible that much of the tin seemingly in solution is in colloidal form.

Current Comment

THE NEW SELECTIVE SERVICE LAW AND PHYSICIANS

Few of the questions now being asked by physicians as to how the new draft law will affect them can be answered until the regulations are issued by the Provost Marshal-General. There are some 75,000 physicians in the United States under 45 years of age. Those holding commissions in the Medical Department of the Army, Navy and Public Health Service are not required to register. Members of Local and Appeal boards, although required to register, as stated elsewhere, are considered as drafted for this duty, and therefore are exempt from general military service. There should be no difficulty now in securing a sufficient number of physicians for the medical needs of the Army and Navy. While a sufficient number undoubtedly could have been secured by the voluntary system, under the new order of things there certainly will be an ample supply. The important fact is that now it will be possible to solve the problem as to securing the number of physicians required for military service without seriously inconveniencing the civilian population. The new law provides for the exemption by the Selective Service Boards of those engaged in necessary "occupations and employments." Special regulations governing the application of the law to physicians will be necessary: the demands on the supply are so many and so complex. Two weeks ago The Journal stated, "It would seem possible to formulate regulations which would receive the approval of the Surgeon-General of the Army and of the Provost Marshal-General, which would practically place all physicians of draft age under the jurisdiction of the Surgeon-General of the Army." The only satisfactory solution of the whole problem is through the cooperation of the Surgeon-General of the Army and the Provost Marshal-General. The obvious necessity of this makes it practically certain that such cooperation will be effected. Specific regulations must be formulated to guide the Selective Service Boards, the ultimate object being to place the disposal of drafted medical men in the hands of the Surgeon-General. The ideal way would be to draft all physicians under 45 years of age, to commission them in the Medical Corps of the Army, and to place them at the disposal of the Surgeon-General of the Army, who would place on the inactive list those required in civil life. The demands on the medical profession are: (1) military and naval—including medical examiners for Selective Service Boards; (2) institutional—including medical colleges, hospitals, state asylums, etc.; (3) industrial—including sanitation and the care of employees in munition and other large manufacturing plants; (4) public health—including national, state, county and municipal health officials; and (5) civilian practice. The Surgeon-General's Office already possesses data covering most of these needs, and has available a complete survey of the medical conditions in civilian communities.

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[1] Salant, W.; Rieger, J. B., and Treuthardt, E. L. P.: The Distribution and Elimination of Zinc and Tin in the Body, Jour. Biol. Chem., 1918, 34, 463.

[2] Street, J. P.: Twenty-Second Report on Food Products and Tenth Report on Drug Products, 1917, Bull. 200, Connecticut Agric. Exper. Station, 1917.

[3] Bigelow, W. D.: Bull. 2, Research Laboratories, National Canners' Assn., August, 1914.

THE CALCIUM REQUIREMENT OF MAN

Among all the inorganic elements that occur in the body, calcium is the most abundant. The store of it, particularly in the skeletal structures, is so large that considerable drains on this reserve — if we may think of the bones in this sense — may be made without obvious signs of damage. Nevertheless, as the recent studies of Osborne and Mendel[1] have emphasized anew, the supply of calcium cannot long be neglected with impunity in the case of individuals that have a special need for it, as is true in growth, during gestation and milk production. This is almost a truism; yet how little is known by the average practitioner regarding the quantity of lime that his patient needs? And how much does he know about the actual supply being furnished in the diet or how it can be supplemented? Energy and protein are not the sole desiderata for adequate nutrition, even though a shortcoming in respect to either makes itself felt very soon. Professor Sherman of the department of Food Chemistry of Columbia University, New York, to whom, in conjunction with various co-workers, we owe much of the information about the human adult need of calcium, has lately supplemented his earlier studies in this field.[2] These observations have an enhanced value because they represent the outcome of very carefully conducted balance experiments in which income and output were measured over the unusually long period of a month in some instances. Without giving the experimental details, we may summarize the findings by the general statement that an average of 0.45 gm. (about 7 grains) of calcium per adult man per day represents approximately the minimum maintenance requirement for normal human nutrition. Expressed in more familiar terms, a pint of milk or less will supply this quantity of calcium; but it will require pounds of meat or common milled cereals to furnish it. And it is well for him who is accustomed to prescribe lime to remember that a pint of milk usually contains more of the element than does the same volume of saturated lime water. Incidentally, some of Sherman's recent experiments, carried out on women, negative the idea of a distinct monthly cycle in the metabolism of either nitrogen, phosphorus or calcium (except for the previously known tendency to retain nitrogen for a day or so at the beginning of the menstrual period). The output of any of these three elements in the menstrual flow was not large enough to affect materially the estimate of the daily requirement for normal metabolism as averaged for the entire month. From this standpoint, to quote Sherman, Gillett and Pope,[2] the menstrual flow is essentially a blood loss, and as such is important to the balance of intake and output of iron, but of minor consequence in the nitrogen, phosphorus or calcium metabolism.

A MEDICAL DIVISION IN THE PROVOST MARSHAL-GENERAL'S OFFICE

One of the important functions connected with the application of the selective service law in raising our Army is the physical examination of registrants. This work may be regarded as fundamental. If it is not satisfactorily done, some men who are physically fit will be rejected for physical causes and others who are not physically fit will be accepted. In the first case the nation loses in its fighting man power; in the second, the nation suffers a great financial loss in connection with inducting registrants who are returned to their homes, and later on through the payment of compensation for disability. The recent establishment of a medical division in the Provost Marshal-General's Office is a commendable recognition of the importance of these physical examinations. The first step in this accomplishment was the appointment last February of Doctor, now Colonel, Frank Billings, who was assigned as medical aide to the Provost Marshal-General. But since that time the medical phases have developed to such an extent that the enlargement of this position into a specific division in the Provost Marshal-General's Office inevitably followed. The personnel of the medical division consists of Col. F. R. Keefer, of the regular medical corps, chief, assisted by Major Hubert Work and Capt. D. Chester Brown. This personnel will be enlarged as required. The new selective service law will involve the registration and physical examination of some 14,000,000 men. This will have to be accomplished in a much shorter time than was allowed to the same duties connected with the less than 10,000,000 men covered by the first selective service law. It is possible that the present machinery, so far as physical examinations are concerned, is not ideal. There is no doubt that some of the criticisms of the method of conducting physical examinations of registrants in the past have been to a certain extent justified. But there is no time to create new machinery, even though such might be necessary to secure ideal conditions. The medical division in the Provost Marshal-General's Office is already correcting faults here and there. We may look forward to the physical examinations of the new increment to the Army with optimism and with the hope and belief that there will be less cause for criticism in the future than, perhaps, there was in the past.

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[1] Osborne, T. B., and Mendel, L. B.: The Inorganic Elements in Nutrition, Jour. Biol. Chem., 1918, **34**, 131. Inorganic Elements in Nutrition, editorial, The Journal A. M. A., Aug. 24, 1918, p. 660.

[2] Sherman, H. C.; Gillett, L. H., and Pope, H. M.: Monthly Metabolism of Nitrogen, Phosphorus and Calcium in Healthy Women, Jour. Biol. Chem., 1918, **34**, 373. Sherman, H. C.; Wheeler, Lucile, and Yates, Anna B.: Experiments on the Nutritive Value of Maize Protein and on the Phosphorus and Calcium Requirements of Healthy Women, Jour. Biol. Chem., 1918, **34**, 383.

THE BLOOD SUGAR IN DIABETES

Although sugar is continually present in the blood, no significant amount escapes through the kidneys into the urine during health. In diabetes, however, or the condition which S. R. Benedict has recently designated as glycuresis in contrast to glycosuria, glucose may be found in abundance in the urine. It is not clear that this is always the outcome of hyperglycemia, for frequently there are cases of the latter without accompanying abnormal glycosuria. These facts have long furnished a puzzle to the student of the chemistry of the subject. Among the hypotheses framed to explain the failure of the sugar in normal blood to escape into the urine has been the assumption that the blood sugar is normally in some rather unstable combination, perhaps with a colloid substance like protein, which cannot pass through the renal membrane. According to this the normal colloid-sugar of the blood would differ from the "free" sugar arising under pathologic conditions and readily penetrating the glomerulus of the kidney. This "combined" sugar hypothesis has usually been denied because of the demonstrations that the glucose present in the serum is readily dialyzable, indicating that it must be free. In criticizing this attitude, Kleiner[1] of the Rockefeller Institute has pointed out that evidence has always been obtained with the blood of normal animals exclusively. He further asserts that the property of being secreted by the kidney is not necessarily a criterion of diffusibility. Various colloidal substances when administered parenterally are quickly thrown out by the kidney; the higher polysaccharids[2] are good examples. Accordingly, Kleiner has compared the diffusibility of sugar in the blood from diabetic and normal animals, respectively, the fluid in the latter case being brought to the same initial sugar content by the addition of glucose. The diabetic blood sugar dialyzed at an irregular rate, with a delayed or completely interrupted dialysis during one or more periods. The control dialysis of normal blood with added free sugar was not interrupted in this manner. The divergent results are interpreted as possible evidence for the existence of "combined" sugar in diabetic blood. This affords no easier clue to the solution of the problem originally propounded; yet it has not prevented its author from adding the further hypothesis that a considerable part of diabetic blood sugar, being in a combined and less easily diffusible condition, is not stored or used by the cells because it cannot pass from the blood through the walls of the capillaries and into the tissues. Thus "combined" blood sugar becomes the competitor of "decreased permeability" of vessels in the conflict of hypotheses where the known facts still fail. And the problem remains.

MEDICAL MEMBERS OF LOCAL AND DISTRICT APPEAL BOARDS

A number of the medical members of local and district appeal boards have resigned to accept commissions in the Medical Corps of the Army; more than a hundred were commissioned during the month of July. While their action in the great majority of cases has been prompted by purely patriotic reasons, some undoubtedly have acted in the belief that they would be subject to draft under the new Selective Service Law, and preferred to secure commissions before being called. These resignations have already seriously crippled many of the boards. It is for this reason that the Provost Marshal-General has taken action to prevent as far as possible such resignations in the future. It must be remembered that the Selective Service Law, in creating these boards, is specific in defining the functions of the members and the punishment for neglect of duty. The regulations state that members of these boards are as effectively "drafted for this duty as are registrants who are selected for military service." The only way in which a member of a local or district appeal board may resign is by application for relief directly to the governor of the state. The governors have now been asked not to accept such resignations, and draft boards have been cautioned not to release necessary medical members without the sanction of the Provost Marshal-General. The needs of the Provost Marshal-General's Office are regarded as paramount, and the Surgeon-General is requesting local examiners for the Medical Reserve Corps, in forwarding papers of applicants, to indicate whether or not the applicant is a member of a Selective Service board. Undoubtedly, if there is a competent examiner available to take the place of the one who desires to resign, the resignation will be accepted. These comments apply to medical members of local and district appeal boards only; not to members of medical advisory boards.

The Hospitals of Chile.—The public hospitals in France and in most of the South American countries are under one central organization in the cities, called the *Assistance publique* or the *Asistencia Publica.* All the care of the sick and poor is grouped under this heading. In Argentina a movement is under way to group the hospitals throughout the country in one national *Asistencia Publica.* In Chile, a supreme council for the country was organized last year, but the separate cities still have each their own individual *Asistencia* or *Beneficencia* system. The disadvantages of this are seen, for example, in the recent news that the authorities at the town of Freirina have had to close the hospital at that place and send the patients home, as no funds were available to keep it open. The *Asistencia Publica* of Santiago, Chile publishes a handsome quarterly, the *Revista de Beneficencia Publica.* The editorial staff includes the administrator and subadministrator of the *Asistencia Publica,* A. del Rio and G. Greve, and they seek to record the work being done in the hospitals of the city, to publish stimulating articles in all branches of hospital work, inculcating high ideals and relating what is being accomplished in other countries. The *Revista* gives the list with full details of all the *donations* and legacies that are being made to hospital and sanatorium work throughout Chile, quite an extensive list.

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[1] Kleiner, I. S.: The Rate of Dialysis of the Blood Sugar in Experimental Diabetes, Jour. Biol. Chem., 1918, **34**, 471.

[2] Mendel, L. B., and Mitchell, P. H.: Am. Jour. Physiol., 1905, **14**, 239.

Medical Mobilization and the War

Personnel of the Medical Department

For the week ending Aug. 23, 1918, the personnel of the Medical Department of the Army included:

Medical Corps: 933, including 1 major-general, 64 colonels, 112 lieutenant-colonels, 296 majors and 460 lieutenants.

Medical Reserve Corps: 23,531, including 1 colonel, 8 lieutenant-colonels, 1,565 majors, 7,146 captains and 14,811 lieutenants. On active duty: 22,232, including 1 lieutenant-colonel, 1,487 majors, 6,840 captains and 13,904 lieutenants.

Medical Corps, National Guard: 1,194, including 22 lieutenant-colonels, 262 majors, 257 captains and 653 lieutenants.

Medical Corps, National Army: 369, including 6 brigadier-generals, 92 colonels, 251 lieutenant-colonels, 9 majors and 1 captain.

The Discharges to date are:

	Number		
Cause	M.C.N.A.	M.R.C.	M.C.N.G.
Physical disability	0	766	56
Inaptitude	0	289	22
Other branches of service	3	645	76
Resignations	0	205	34
Domestic troubles	0	62	1
Needed by community	1	49	0
Deaths	1	103	7
Dismissals	0	17	4
Duty completed	0	3	0
No reason given	0	15	1
	5	2,154	201

NECESSITY FOR CAREFUL EXAMINATION OF REGISTRANTS

On August 6, Provost Marshal-General Crowder addressed the following message to governors of all states:

1. Rejections of registrants at camps have recently reached inexcusably high figures. It is evident that many Local Boards have forwarded unfit men whose defects were readily recognizable.
2. Order each Local Board to review, with aid of Advisory Board, Forms 1010 of all registrants grouped as qualified for general military service and now awaiting call.
3. Order reexamination of all cases found by such review to be doubtful and bring to the attention of Local Boards, their duty to reject all unfit registrants.
4. Impress on boards their responsibility for exclusion of the unfit. Assure them of your assistance, and utilize the full time of your Medical Aide for the purpose.

MEDICAL PREPARATION FOR THE IMPENDING DRAFT

The following circular letter, dated August 22, was addressed to the Medical Aides to the Governors by Col. F. R. Keefer, chief of the Medical Division of the Provost Marshal-General's Office:

1. It is anticipated that, pursuant to legislation now pending, a very large registration will be made in September.
2. As the entire work incident to this new draft must necessarily be compressed within a very few weeks, the machinery of the draft must be repaired, oiled, and otherwise put in perfect condition to function at high speed and with efficiency.
3. It must not be said afterward that the medical parts of the machine were weaker than the rest, nor that their slow or imperfect action resulted in delay.
4. To the end that the greatest efficiency may be had, therefore, and the greatest credit accrue to those concerned with the medical operations of the draft, Medical Aides are instructed immediately to establish closer relations with all medical examiners; to urge on them the enormous importance of the matter; to make them realize that the coming test will be the greatest in the history of the draft; and to impress on them the fact that the efficiency of our overseas armies depends vitally on the way in which the test is met by THEM.
5. A careful but rapid survey must be made of all medical examiners of Local Boards. Weak examiners must be replaced; slow ones must be speeded up. Assistance must be arranged for where needed. All must be made to realize the emergency.
6. Medical Advisory Boards must be instructed that examinations must be promptly made, and the papers returned at once. All examiners must be made aware that defects which are obvious even to a layman, reflect discredit on the board as well as on the system.
7. Analysis of causes of rejection at mobilization camps will indicate weaknesses of individual boards, and suggest the proper remedy.
8. Where not already carried out, Medical Aides will arrange for meetings of medical examiners from a number of boards. These should be addressed by the Medical Aides, or by some competent examiner designated by the Aide. By selecting such men with care, they may be established as consultants, to whom examiners may refer for advice.
9. A force of inspectors has recently been organized in connection with the draft. The Provost Marshal-General contemplates that these inspectors shall, as a part of their duties, make inquiries concerning the knowledge of Medical Aides as to the efficiency and preparedness of their medical examiners throughout the state.
10. The medical profession, in its intimate relation to the draft, has met and discharged its obligations for the most part in an admirable manner. It must not fail now.

COMMISSIONS ACCEPTED, MEDICAL CORPS, U. S. ARMY

Previous lists published in The Journal, June 1, 22 and 29, July 13, 20 and 27, August 3, 10, 17 and 24.

ALABAMA

Birmingham—Thornton, W. L.
Wilson, O. E.
Huntsville—Caldwell, E. V.
Montgomery—Wilkerson, F. W.

ARKANSAS

Beirne—Lassiter, W. D.
Dermott—Baker, E.
DeQueen—Kitchens, C. E.
Little Rock—Horner, E. J.
Walcott—Majors, W. M.

CALIFORNIA

Long Beach—Hill, W. B.
Los Angeles—Colloran, J. E.
Dale, H. M.
Force, J. N.
Loomis, M. L.
Rogers, A. R.
Seager, H. W.
Modesto—Bissell, N. C.
Pasadena—Acker, E.
San Francisco—Hunt, T. E.
Stockton—McLeish, A. H.

COLORADO

Pueblo—Wolfe, J. G.

CONNECTICUT

New Canaan — O'Shaughnessy, E. J.

DELAWARE

Wilmington—Pawlikowski, S. B.

DISTRICT OF COLUMBIA

Washington—Saye, E. B.
Thomas, W. J. G.

FLORIDA

Oakland—Auwers, F. J.

GEORGIA

Ashburn—Harris, H. W.
Turner, W. J.
Atlanta—Mashburn, C. M.
McCord, J. R.
Augusta—Gehrken, H. S.
Brentwood—Moody, E. A.
Cartersville—Wofford, W. E.
Daisy—Elarbee, G. W.
Danielsville—Payne, D.
Fort Valley—Hickson, M. L.
Gainesville—Jones, W. A. N.
Jesup—Crummey, E. C.
Nevils—Deal, D. L.
Thomasville—Palmer, J. B.

IDAHO

Boise—Shurtz, R. E.
Pocatello—Newton, A. M.

ILLINOIS

Alsey—Bowman, C. S.
Alton—Jones, F. W.
Chicago—Dagnault, T. V.
Everhart, A. G.
Kerr, G. A.
Kratze, L. R.
Moe, C. C.
Ostroskey, G. L.
Pfeiffer, G. E.
Shannon, C. G.
Chicago Heights—Fenn. G. K.
East Moline—Ellingsworth, J. H.
Elgin—Howell, J. A. S.
Illiopolis—Willcockson, H. B.
Joliet—Fahrner, A. H.
Kankakee—Cannon, W. P.
Martinton—Herdien, E. F.
Morrison—Downs, J. M.
Sullivan, E. P.
Norwood Park—Bowes, L. M.
Rockford—Fringer, W. R.
Rock Island—Lachuer, B. J.
Ostrom, L.
Strawn—Boies, H. M.
Tampico—Terry, H. A.
Urbana—Miller, H. W.
Virginia—Blackburn, W. R.
McGee, J. A.

INDIANA

Berne—Schenk, C. H.
Bridgeton—Bennett, P. R.
Danville—Armstrong, L. W.
Francesville—Kupke, E. H. W.
French Lick—Rogers, L.
Hammond—Chevigny, J. A.
Fox, F. H.
Hartford City—Buckles, H. L.
Indianapolis—Eberwein, J. H.
Ludwig, O. D.
Pebworth, A. C.
Truitt, F. L.
LaFayette—Ruschli, E. B.
Van Reed, E.
Montgomery—Hart, D.
New Salem—Metcalf, H. C.
North Judson—Englerth, P. O.
Oxford—Parker, E. E.
Rensselaer—Gwin, M. D.
Zanesville—McBride, J. L.

IOWA

Alexander—Rodemeyer, F. H.
Chariton—Baskin, C. L.
Fort Dodge—Garrett, J. M.
Garden Grove—Lyon, W. E.
Grinnell—Padgham. J. T.
Iowa City—Chenoweth, C. E.
Lacona—Cruzen, J. L.
Marshalltown—Sieg, H. L.
Mason City—Hoag, H. M.
Nevinville—Miller, C. A.
Newton—Hinshaw, S. E.
Peterson—Sproule, E. W.
Postville—Blessin, O. J.
Sioux City—Nervig, I. E.
Victor—Detchon, H. S.
Webster City—McCauliff, G. T.
Wesley—Carmody, T. J.

KANSAS

Burr Oak—O'Leary, A. J.
Hartford—Nienstedt, W. F.
Hutchinson—Gage, G. R.
Larned—Ingels, A. B.
Mount Hope—Hunsberger, H. G.
Reading—Settle, J. A.
Topeka—Miller, N. D.
Sams, L. V.
Wellington—Caldwell, J. C.
Wichita—Agnew, T. M.
Fisher, R. S. C.

KENTUCKY

Covington—O'Maley, J. M.
Kirksville—Combs, W. C.
Lexington—Herring, H. G.
McGinnis, J. S.

Louisville—Hume, W. I.
Pirkey, E. L.
Thompson, C.

LOUISIANA

Donaldsonville—Thibodaux, P. T.
Jena—Hamilton, F.
LaFayette—Clark, L. O.
Minden—Martin, S. F.
Mount Pleasant—Myerdick, A. H.

MAINE

Clinton—Newcomb, C. H.
Dover—Bundy, H. C.

MARYLAND

Baltimore—Brady, L.
Cohen, L.
Rowland, J. M. H.
Carroll Park—Myers, R. E.

MASSACHUSETTS

Abington—Bishop, W. A.
Boston—McCluer, C. W.
Webster, F. A.
Brighton—McCauley, A. A.
Brockton—Buckley, G. A.
Brookline—Cook, W. W.
Cambridge—Havens, L. C.
Fall River—Turner, W. G.
Holyoke—Gabler, G. L.
Hand, E. P.
Northampton—Cooney, M. E.
Willimansett—Heywood, N. J.
Falvey, H. J.
Ward, R. J.

MICHIGAN

Comstock Park—Boet, F. A.
Deckerville—Merriman, H. H.
Detroit—Bocelaere, L. H. V.
Brownell, W. S.
Crow, S. C.
Henderson, H.
Ryan, W. D.

MINNESOTA

Lamberton—Walter, C. C.
Stewartsville—Fawcett, C. E.
St. Charles—Rollins, F. H.
St. Paul—Finberg, J.
Ghent, M. M.
Schoch, R. B. J.
Warner, H. H.

MISSISSIPPI

Marks—Neal, S. F.
Pinola—Kyger, A. F.

MISSOURI

Ashland—Pryer, H. B.
Cape Girardeau—Porterfield, J. D.
Wilson, E. H. G.
Carthage—Powers, E.
Clayton—Moore, R. D.
Desloge—Turley, J. G.
Excelsior Springs — Musgrave, J. E.
Okell, O. C.
Huntsville—Mabee, J. R.
Kansas City—Byler, W. F.
Capell. C. S.
Myers, J. L.
Rider, E. B.
Kearney—Milligan, R. H.
LaMonte—Walker, W. E.
Monett—Russell, J. M.
Paynesville—Guy, R. J.
Rocky Comfort—McCall, O. S.
Rynunville—Billeter, W. J.
St. Joseph—Boteler, G. M.
St. Louis—Boogher, F.
Burst, E. A.
Hertel, A. L.
Miller, G. H.
Schuck, P.

MONTANA

Laurel—Stevens, L.
Missoula—Anderson, E. C.
Roundup—Firey, W. I.

NEBRASKA

Bertrand—Rider, E. E.
Kenesay—Townley, F. N.
Lincoln—Broman, M. R.
Omaha—Pinto, A. S.

NEW HAMPSHIRE

Nashua—McLaughlin, P. J.
New Market—Monge, J. A.

NEW JERSEY

Long Branch—Strahan, F. G.
Newark—Fasano, G.
Orange—Neare, C. R.
Palisades Park—Rambaud, G. G.
Plainfield—Leggett, T. H., Jr.

NEW YORK

Arcade—Davis, G. G.
Brooklyn—McQuillin, J. P.
Skladzien, P. W.
Buffalo—Fowler, R. G.
Hoehman, H. D.
Mangano, J. L.
Canisteo—Preston, J. L.
Flushing—Teas, J. C.
Governors Island—Fein, M. J.
Little Neck—Van Nostrand, H. S.
Mount Morris—Bowen, F. J.
New York—Ackerman, H.
Babcock, J. W.
Crece, J. P.
Cronk, J. M.
Daly, D. J.
Ferry, R. M.
Fisk, J. C.
Hoppe, E. C.
Lurie, L.
Osnate, M.
Reid, J. J., Jr.
Hirsch, S.
Muller, H. R.
Sunshine, L.
West, D.
Wirklich, H. W.
Perry—Peddle, G. H.
Shaldrake Springs—Sandy, W. C.
Yonkers—Wolf, A. W.

NORTH CAROLINA

Ashville—Reeves, A. F.
Batesburg—Gibson, W. T.
Chester—Abell, R. E.
Lewiston—Garriss, F. J.

OHIO

Arcanum—Smith, W. J.
Archbold—Murbach, E. A.
Cincinnati—Fox, A. J.
Wenning, T. H.
Cleveland, Martzloff, K. H.
Thomas, C. B.
Columbus—Shoemaker, A. J.
Dayton—Prugh, M. D.
Webster, H. H.
Eaton—Treffinger, C. M.
McArthur—James, H. S.
Oxford—Wilkie, A. B.
Port Washington—Demuth, W. F.
Prairie Depot—Whitacre, R. F.
St. Paris—Norman, J. W.
Toledo—May, E. G.
Seybold, N. J.
Walnut Creek—Bahler, C. T.

OKLAHOMA

Arcadia—Baker, R. C.
Ardmore—Gregory, D. A.
Elmer—McConnell, L. H.
Freedom—Hall, W. L.
Hugo—Askew, E. R.
Kiefer—Artz, T. L.
Muskogee—Ballantine, H. T.
Harris, A. W.
Okeene—Blender, H.
Oklahoma City—Dresbach, H. V.
Holliday, J. R.
Walker, O. J.
Sallisaw—Wood, T. F.
Temple—Holsted, A. B.

OREGON

Carlton—Morrison, A. D.
Portland—Belknap, H. P.
Vale—Brown, F. J.

PENNSYLVANIA

Arentsville—Bickell, U. G.
Butler—Hughes, E. M.
Charleroi—Vieslet, V. P.
Clairton—Norcross, C. B.
Eldred—Humphreys, F. R.
Erie—Gannon, N. D.
McNeill, C. A.
Garrick—Harsha, J. V.
Grove City—Montgomery, B. A.
Marksville—Mayer, G. A.
McDonald—Dickson, W. R.
Dixon, C. W.
Moren—Conahon, F. J.
Oil City—Bruner, P. L.
Perkasie—Strouse, O. H.
Philadelphia—Schwartz, M. J.
Walsh, J.
Pittsburgh—Beddall, S. A.
Clark, W. A.
Crawford, J. S.
Gannon, N. D.
Quakertown—Moyer, W. G.
Sunbury—McCay, R. B.
Vanderbilt—Hazlett, J. H.
[illegible], G. E.
[illegible] L. W.
[illegible] A. E.

SOUTH CAROLINA

Brunson—Mole, J. W., Jr.
Darlington—Scott, C. M.
Georgetown—Buie, L. A.

SOUTH DAKOTA

Alexandria—Maytum, W. J.
Sioux Falls—Stevens, R. G.

TENNESSEE

Forestville—Donahue, B. F.
Memphis—Callihan, P. W.
McIntosh, J. A.
Thomas, H. E.
Nashville—Sharber, A. L.
Trenton—McRee, W. C.

TEXAS

Brownwood—Snyder, N.
Dukedom—Jones, D. L.
El Paso—Brown, C. P.
Galveston—Mills, E. D.
Lipan—Axtell, E. C.
Sequin—Neighbors, A. H.
Strawn—Cromeans, R. E.
Trenton—Stevens, J. W.

UTAH

Salt Lake City—Wheeler, T. H.

VERMONT

[illegible]
[illegible] G. H.
[illegible], H.
Underhill—Fogg, A. L.
Wardsboro—Hefflon, O. V.
West Brattleboro—Hunter, G. B.

VIRGINIA

Berryville—Iden, C. H.
Columbia—Altizer, E. R.
Lynchburg—German, J. R.
Norfolk—Williams, S. D.
Richmond—Brackwell, R. H.
Fitzgerald, J. O.

WASHINGTON

Enumclaw—Ulman, F. G.
Ferndale—Hood, C. S.
Olympia—Longaker, F. A.
Spokane—Gray, G. A.
Ingersoll, E. L.

WEST VIRGINIA

Clarksburg—Halterman, C. W.
Lubeck—Deem, H. N.
Milton—Morrison, L. C.
Ward—Flannagan, L. E.

WISCONSIN

Eau Claire—Mason, E. L.
LaCrosse—Grissom, C. B.
LaFarge—Haggerty, E. E.
Milwaukee—Bach, R. J.
Gillis, J. D.
Wenn, J. F.
New Glarus—Hefty, C. A.
Wauwatosa—McCoy, H.

WYOMING

Cheyenne—Fox, G. A.

COMMISSIONS ACCEPTED, U. S. NAVAL RESERVE FORCE

Previous lists published in The Journal, June 29, July 13, 20 and 27, August 3 and 10.

ALABAMA

Auburn—Yarborough, C. S.
Birmingham—Smith, W. B.

CALIFORNIA

Berkeley—Bailey, S. C.
Graham, H. B.
Campbell—Merrill, W. I.
Los Angeles—Bogue, H. V.
Bowers, C. H.
Fearon, W. M.
Feldman, A.
Saphro, V. O.
Woodland—Blevins, W. J.
San Francisco—Brown, V. de P.

CONNECTICUT

New Haven—Carroll, C. H.
New London—O'Neill, J. B.

DISTRICT OF COLUMBIA

Washington—Peters, D. B.

FLORIDA

Tampa—Duke, R. R.
Higgins, A. F.

GEORGIA

Atlanta—Donaldson, H. R.
Valdosta—Thomas, J. A.

ILLINOIS

Chicago—Soloway, S. S.
Sowers, A. B.
Visher, J. W.
Paris—Myers, A. L.
Pontiac—Young, J. G.
Rock City—Butterfield, C. F. M.
Rock Island—Frey, H.

INDIANA

Indianapolis—Thurston, A. L.

IOWA

Woodbine—Flothow, M. W.

KANSAS

Elk City—Haydon, O. K.

KENTUCKY

Louisville—Bayless, B. W.

LOUISIANA

Pineville—Fougerousse, H. L.

MARYLAND

Long Green—Green, J. S.

MASSACHUSETTS

Boston—Arnold, S. F.
Bailey, F. J.
Brennan, J. T.
Brine, E. L.
Coffin, R. A.
Mulhern, J. P.
Brookline—Marshall, J. R.
Chelsea—McPhail, J. G.
Gloucester—Shields, E. E.
Whitaker, H. E.
Lowell—Collins, W. M.
Middlebury—Harris, W. C.
New Bedford—Atchison, C. M.
Newton—Leary, A. J.
Somerville—Newton, E. R.

MICHIGAN

Detroit—Brengle, D. R.
Osborn, H. A.

MISSOURI

Kansas City—Barker, F. C.
St. Louis—Briggs, G. C.
Deppe, A. H.
Gradwohl, R. B. H.
Taylor, T. W.

NEW HAMPSHIRE

Keene—Davey, H. E.

NEW JERSEY

Hoboken—Peluso, J. D.
Newark—Carlin, E. J.

NEW YORK

Brooklyn—Archambeault, C. P.
Graham, J. C.
Elmhurst—Laul, J. E.
Endicott—Welch, M. W.
Jamaica—Cunningham, B. L.
Mineola—Sawicki, A. M.
Mount Vernon—Quinn, C. M.
New York—Cooney, J. D.
Harper, W. H.
Lore, J. M.
Wilens, I.
Niagara Falls—Walker, O. F.
Norwich—Hausheer, W. C.
Port Chester—Andronaco, G.
Wayland—Buckley, F. H.

NORTH CAROLINA

Manson—Dill, G. T.

OHIO

Saint Marys—Shuffleton, F. A.

OKLAHOMA

Erick—Yarborough, J. E.

OREGON

Eugene—Hayden, D. N.
Portland—Hendershott, H. M.
Murphy, J. M.

PENNSYLVANIA

Harrisburg—Frasier, L. W.
Philadelphia—Betts, N. S.
Greco, T. A.
Magonn, J. A. H.
Pancoast, H. K.
Shuster, B. H.
Siggins, J. C.
Pittsburgh—McEllroy, W. S.
Scranton—Mackey, R. D.
Shillington—High, I. B.

SOUTH CAROLINA

Charleston—Rhame, J. S.
Sumter—Lemmon. C. J.

TEXAS

El Paso—Thomas, G. N.
Houston—Spurlock, G. H.
Turner, B. W.

VIRGINIA

Norfolk—Hart, J. A.

WASHINGTON

Seattle—Abraham, E. D.

WEST VIRGINIA

Eccles—Grigg, A. H.
Wheeling—Caldwell, J. H.

WISCONSIN

Frederic—Arveson, R. G.
Menomonie—Nedry, G. C.
Milwaukee—Oberembt, B. H.

ORDERS TO OFFICERS OF THE MEDICAL CORPS, U. S. ARMY

Alabama

To Ann Arbor, Mich., for intensive training, from Camp Gordon, Lieut. M. L. MOORER, Mount Vernon.

To Arcadia, Fla., Dorr Field, Lieut. J. G. BEDSOLE, Jackson.

To Camp Hancock, Ga., Capt. T. J. BROTHERS, Armiston.

To Camp Jackson, S. C., base hospital, Major J. E. DEDMAN, Birmingham.

To Camp Sheridan, Ala., Lieut. O. E. WILSON, Birmingham.

To Camp Zachary Taylor, Ky., Lieut. L. H. FORD, Phill Campbell.

To Fort Oglethorpe for instruction, Capts. N. F. COCKE, Birmingham; G. J. WINTHROP, Mobile; Lieut. T. E. PHILLIPS, Cuba.

To Hoboken, N. J., from Fort McHenry, Lieut. H. C. EDMUNDSON, Birmingham.

To Newport News, Va., Lieut. J. A. ELLIOTT, Moundville.

To Washington, D. C., Surgeon-General's Office, Capt. W. A. SELLERS, Montgomery.

Honorably discharged on account of physical disability incurred in line of duty, Major S. A. BILLING, Birmingham.

Alaska

To Army Medical School for instruction, from Fort William H. Seward, Capt. H. M. CRAIG, Hawes.

Arizona

To Hot Springs, N. C., from duty as a private, Lieut. W. N. McDUFFIE, San Carlas.

Arkansas

To Camp Pike, Ark., Lieut. E. J. HORNER, Little Rock.

To Camp Zachary Taylor, Ky., Lieut. R. L. HOPKINS, DeQueen.

To Fort Oglethorpe for instruction, Lieut. J. A. KING, Mellwood.

To Hampton, Va., Lieut. W. H. DeCLARK, McGehee.

California

To Camp Beauregard, La., from Camp Zachary Taylor, Major P. G. WHITE, Los Angeles. Base hospital, from Camp Travis, Major H. ABRAHM, San Francisco.

To Camp Cody, N. M., Capts. S. B. VAN DALSEM, San Jose; J. H. O'CONNOR, St. Helena; Lieut. W. W. MULVEHILL, Los Angeles. Base hospital, Capt. P. INGBRETSON, San Diego.

To Camp Fremont, Calif., base hospital, Capts. R. L. BYRON, M. H. ROSS, Los Angeles; G. H. BOSKOWITZ, San Francisco; E. N. REED, Santa Monica; Lieut. W. C. CHILSON, Tulare; from Camp Kearney, Lieuts. P. E. DOLAN, Los Angeles; O. D. CHAMLEY, San Gabriel.

To Camp Gordon, Ga., from Western Department, Major J. M. WHEATE, Fort Miley.

To Camp Kearney, Calif., base hospital, Capts. T. C. McCLEAVE, Berkeley; A. S. GRANGER, J. Y. OLDHAM, Los Angeles; A. M. SMITH, San Leandre; Lieut. J. M. LACEY, Los Angeles. With the board examining the troops for tuberculosis, from Camp Lewis, Capt. E. VON ADELUNG, Oakland.

To Camp Meade, Md., from Fort McHenry, Lieut. J. SAYLIN, El Monte.

To Fort Oglethorpe for instruction, Capt. H. W. EDGERTON, Pomona.

To Fort Riley, Capt. V. J. McCOMBS, Los Angeles; from Mayo Clinic, Lieut. F. THOMAS, Los Angeles. For instruction, Lieuts. C. D. COLLINS, Fresno; C. L. SWIFT, Loma Linda; A. FRIEDMAN, San Francisco.

To New Haven, Conn., from Camp Dodge, Major R. L. BYRNES, Los Angeles.

To report to the commanding general, Western Department, Capts. F. E. TULLEY, Los Angeles; C. O. HANSON, Pasadena; E. E. STONE, San Francisco; from Camp Fremont, Major C. CROSS, San Francisco.

To San Francisco, Calif., from Camp Fremont, Lieut. I. H. BETTS, Visalia. Letterman General Hospital, Capt. E. L. COTTRELL, Scotia; Lieut. R. D. WILSON, San Jose.

To his home, from Washington, Major E. L. SWIFT, Fort McDowell.

Honorably discharged on account of physical disability existing prior to entrance into the service, Capts. A. GIBSON, Alturos; C. E. IDE, Los Angeles; Lieut. A. H. VANCE, Sausalito.

The following orders have been revoked: *To Camp Grant, Ill.*, from Fort Riley, Capt. W. V. CHALMERS-FRANCIS, Los Angeles. *To Camp Kearney, Calif.*, from Fort Riley, Lieut. C. D. FANTON, Riverside. *To Camp MacArthur, Texas*, from Western Department, Lieut. G. M. DUNNE, San Francisco.

Canal Zone

To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieut. D. J. MURPHY, Corozel.

To report to the commanding general, Panama Canal Department, Lieut. M. A. V. SMITH, Ancon.

Colorado

To Baltimore, Md., Johns Hopkins Hospital, for instruction, from Fort Oglethorpe, Lieut. L. G. BROWN, Colorado Springs.

To Camp Cody, N. M., Capt. J. G. ESPY, Trinidad.

To Camp Crane, Pa., from Jefferson Barracks, Lieut. A. J. CHISHOLM, Antonito.

To Camp Kearney, Calif., base hospital, Capt. W. T. BRINTON, Cripple Creek.

To Camp MacArthur, Texas, base hospital, Capt. D. E. HOAG, Pueblo.

To Camp Sherman, Ohio, as assistant to camp surgeon, from Southern Department, Major C. R. POLLOCK, Rocky Ford.

To Denver, Colo., from Otisville, Capt. W. P. HARLOW, Boulder.

To Fort Riley for instruction, Capt. N. D. WELLS, Fort Morgan; Lieut. H. S. COOPER, Denver.

To New Haven, Conn., Capt. M. J. KEENEY, Pueblo.

The following order has been revoked: *To Camp Pike, Ark.*, from Fort Riley, Lieut. O. A. DUNCAN, Crawford.

Connecticut

To Camp A. A. Humphreys, Va., as camp psychiatrist, from Camp Wheeler, Capt. W. R. MILLER, Southington.

To Camp Beauregard, La., base hospital, from Camp Bowie, Capt. O. F. ROGERS, New Haven.

To Camp Crane, Pa., from Fort Oglethorpe, Lieut. G. O. WELLMAN, Clinton.

To Camp Gordon, Ga., base hospital, from Camp Shelby, Lieut. W. T. DRISCOLL, Norwich.

To Camp Hancock, Ga., from Camp Upton, Capt. J. F. HACKETT, Mansfield Depot.

To Camp Jackson, S. C., to examine the command for nervous and mental diseases, Lieut. C. F. VERNLAND, Hartford.

To Camp Shelby, Miss., from Camp Devens, Lieut. H. O. DIXON, Bridgeport.

To Fort Oglethorpe for instruction, Lieut. E. T. FALSEY, New Haven; from duty as a private, Lieut. A. B. GROSS, Hartford.

To Fort Sam Houston, base hospital, from Camp Hancock, Lieut. G. M. MELVIN, Middletown.

To Hoboken, N. J., from Camp Greene, Capt. H. G. ANDERSON, Waterbury, from Camp Lee, Lieut. R. H. RYDER, Waterbury.

To Pittsburgh, Pa., Carnegie Institute of Technology, from Camp Greene, Capt. W. T. OWENS, Hartford.

Delaware

To Lakewood, N. J., from Fort Oglethorpe, Lieut. A. K. LOTZ, Wilmington.

District of Columbia

To Camp Gordon, Ga., base hospital, from Fort Oglethorpe, Major C. M. DOLLMAN, Washington.

To Camp Lee, Va., base hospital, Lieut. E. SNOWDEN, Washington.

To Camp Lewis, Wash., base hospital, from Camp Hancock, Capt. O. C. COX, Washington.

To Camp Newton D. Baker, Texas, base hospital from Camp Gordon, Ga., Lieut. M. B. FISCHER, Washington.

To Fort Oglethorpe, for instruction, Lieut. O. J. COOK, Washington.

To Fort Riley, Lieut. W. B. CARR, Washington.

To Hoboken, N. J., from Camp Meade, Lieut. P. S. PUTZKI, Washington, from Fort McHenry, Capt. C. D. HAAS, Washington; from Surgeon General's Office, Lieut.-Col. F. W. WOOD.

To report to the commanding general Eastern Department, Capt. A. J. READ, Washington.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to Camp Meade, Md.*, base hospital, Capt. H. F. WARDEN, Washington.

The following order has been revoked: *To Camp A. A. Humphreys, Va.*, from Fort Myer, Capt. W. A. FRANKLAND, Washington.

Florida

To Camp Meade, Md., from Fort McHenry, Capt. A. H. FREEMAN, Starke.

To Camp Pike, Ark., base hospital, Capt. F. A. NORRIS, Jacksonville.

To Camp Sheridan, Ala., Lieut. S. A. SCRUGGS, Jacksonville.

To Fort Oglethorpe for instruction, Lieuts. W. F. ROSBOROUGH, Gainesville; W. S. MICKLER, Lee.

To Hoboken, N. J., from Fort McHenry, Lieut. W. D. CAWTHON, Panama City.

Georgia

To Arcadia, Fla., Door Field, Capt. J. T. McCALL, Rome.

To Camp Hancock, Ga., base hospital, Lieut. J. E. DIEHL, Macon.

To Camp Jackson, S. C., base hospital, Capt. T. H. HALL, Macon; Lieut. J. H. STEWART, Athens.

To Camp Joseph E. Johnston, Fla., from Fort Oglethorpe, Lieut. W. A. DEAN, Rome.

To Camp Logan, Texas, as orthopedic surgeon, from Fort Oglethorpe, Lieut. C. M. WEST, Atlanta.

To Camp MacArthur, Texas, Lieut. S. B. BRAY, Savannah.

To Camp Sheridan, Ala., Lieuts. C. B. MEADOWS, Morven; T. J. HOLTON, Thomasville; from Camp Dodge, Lieut. C. A. ALMAND, Lithonia.

To Camp Sherman, Ohio, base hospital, from Fort Oglethorpe, Lieut. R. B. LAMB, Demorest.

To Camp Wadsworth, S. C., from Camp Jackson, Lieut. J. F. BURKHALTER, Morven.

To Fort Myer, Va., from Fort Oglethorpe, Lieut. W. E. WOFFORD, Cartersville.

To Fort Oglethorpe, from duty [illegible] W. YAWN, Alamo. For instruction, Capts. [illegible] nta; J. D. MAULDIN, New Holland; G. H. [illegible] ieuts. J. C. HOLLIDAY, Athens; C. B. GRE[illegible] IONTGOMERY, Butler; C. L. EDGE, Columb[illegible], Columbus; C. C. BRANNEN, Moultrie; E. L. [illegible] W. GRIFFIN, Springfield; W. T. SMITH, Tifton; J. A. OLIVER, Waycross.

To Hoboken, N. J., from Camp Upton, Lieut. T. B. KING, Sandersville; from Fort McHenry, Lieut. V. L. BROWN, Fort Valley; from Fort Oglethorpe, Capt. J. A. SELDON, Macon; from Williamsbridge, Lieut. C. E. WAITS, Atlanta.

To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieut. W. H. MALONE, Villa Rieu.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to Fort Oglethorpe* for instruction, Capt. L. W. CHILDS, Atlanta.

To Walter Reed General Hospital, D. C., Capt. C. BARROW, Savannah.

Honorably discharged on account of physical disability incurred in line of duty, Lieut. B. F. BOND, Canon.

Idaho

To Camp Cody, N. M., Capt. J. M. FAIRLY, Orofino; Lieut. S. T. PATTERSON, Mackay.

To Fort Oglethorpe for instruction, Lieut. E. N. ROBERTS, Pocatello.

To Fort Riley, Capt. J. C. DWYER, Coeur D'Alene. For instruction, Lieuts. H. L. WILLSON, Idaho Falls; J. M. LYLE, Peck.

Honorably discharged, Lieut. F. W. MITCHELL, Blackfoot.

Illinois

To Camp Beauregard, La., from Camp Bowie, Capt. G. W. SCUPHAM, Chicago, Camp Zachary Taylor, Capt. W. R. LARKIN. Lieuts. M. S. PEDOTT, Chicago; F. G. OSTROWSKI, Cicero. Base hospital, Lieut. C. R. KERR, Anchor.

To Camp Bowie, Texas, base hospital, Lieut. C. H. WIENEKE, Chicago.

To Camp Cody, N. M., base hospital, Lieut. P. D. LYONS, Chicago; from Camp Grant, Capt. A. F. BYFIELD, Chicago.

To Camp Crane, Pa., from Camp Custer, Lieut. J. C. KACZKOWSKI, Chicago.

To Camp Custer, Mich., base hospital, from Camp Pike, Capt. R. B. NYBERG, Harrisburg.

To Camp Dodge, Iowa, Capts. J. L. MANNING, R. A. SMITH, Chicago. Base hospital, Lieut. K. A. MEYER, Chicago.

To Camp Forrest, Ga., from Fort Oglethorpe, Lieut. E. W. SEABURG, Chicago.

To Camp Gordon, Ga., base hospital, from Camp Shelby, Lieut. E. V. DEL BECCARO, Chicago.

To Camp Greene, N. C., base hospital, from Camp Sevier, Major J. C. FRIEDMAN, Chicago; from Williamsbridge, Lieut. H. A. ROSENBAUM, Chicago. With the board examining troops for tuberculosis, from Camp Hancock, Lieut. A. S. CAMPBELL, Oak Forest.

To Camp Hancock, Ga., Lieut. H. D. FAST, Mackinaw.

To Camp John Wise, Texas, from Camp Kelly, Lieut. G. S. MIKKELSON, Chestnut.

To Camp Joseph E. Johnston, Fla., from Fort Oglethorpe, Lieut. J. MOLES, Chicago.

To Camp Lee, Va., with the board examining the troops for cardiovascular diseases, Lieut. C. R. WILEY, Chicago.

To Camp McClellan, Ala., from Camp A. A. Humphreys, Lieut. H. REINSCH, Chicago.

To Cdmp Meade, Md., from Fort McHenry, Lieut. P. G. KITTERMAN, Chicago.

To Camp Newton D. Baker, Texas, base hospital, from Camp Devens, Capt. T. W. MORGAN, Virden.

To Camp Sheridan, Ala., Lieuts. J. J. BARTH, F. A. SMITH, Chicago, from Camp Dodge, Lieut. A. J. WEIGEN, Chicago.

To Camp Sherman, Ohio, base hospital, from Camp Zachary Taylor, Lieut. J. F. HENDERSON, Charleston.

To Camp Wadsworth, S. C., from Camp Dodge, Lieut. F. W. GAARDE, Chicago.

To Camp Wheeler, Ga., base hospital, Capt. A. E. GAMMAGE, Chicago.

To Camp Zachary Taylor, Ky., Capt. H. C. MUNSON, Rushville. Base hospital, Lieut. L. C. DUNLAP, Bath; from Camp Gordon, Lieut. J. MEYER, Chicago.

To Fort Benjamin Harrison, Ind., base hospital, from Fort Oglethorpe, Lieut. G. B. THOMAS, Hazel Dell.

To Fort Oglethorpe, base hospital, Lieut. A. H. WEIRICH, Jacksonville. For instruction, Capts. W. YEATES, Bonfield; D. C. ROACH, Burlington; C. E. CREER, Charleston; D. M. OLKON, W. A. PLICE, T. J. WILLIAMS, Chicago; H. H. WEST, Elgin; R. N. LANE, Gibson City; R. E. STEVENS, Rochelle; Lieuts. G. D. BRAND, P. H. BRONDE, C. G. HAIDOPOULOS, L. H. HILLS, E. HURWITZ, Chicago; C. E. DONAHOE, East Moline; C. W. RUTHERFORD, Newman; W. I. GREEN, Sumner; C. E. KELSO, Thomasboro.

To Fort Snelling, Minn., base hospital, from Fort Oglethorpe, Lieut. M. C. SCHENK, Rushville.

To Hoboken, N. J., from Camp Crane, Lieut. J. E. MIECZYNSKI, North Chicago; from Camp Dix, Capt. C. A. ROBBINS, Dixon; from Camp Jackson, Lieuts. M. M. KULVINSY, Chicago; R. E. LOGAN, Galena; from Camp Meade, Lieut. G. F. FARMAN, Chicago; from Camp Sherman, Lieut. R. F. HERNDON Springfield; from Camp Upton, Lieut. H. E. VAN EPPS, Sterling; from Camp Wheeler, Capt. W. C. WILLIAMS, Chicago; from duty as a contract surgeon, Capt. J. P. COMEGYS, Rock Island; from Fort Oglethorpe, Major C. D. WILKINS, Chicago.

To Lakewood, N. J., Lieut. C. J. McMULLEN, Chicago.

To New Haven, Conn., Capt. E. H. BUTTERFIELD, Ottawa; Lieut. VAN B. MAURICAN, Rockton; Yale Army Laboratory School, for instruction, Capt. H. JACKSON, Lieut. R. S. AUSTIN, Chicago.

*To report to the commanding genera*l Central Department, Capt. J. F. SCHRADER, Bridgeport. Lieuts. C. E. BEAVERS, Barry; F. M. McNAIR, Sugar Grove. Southern Department, from Camp Cody, Lieut. W. P. DAVIDSON, Sullivan.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to Camp Lee, Va.,* base hospital, Capt. S. R. CATLIN, Rockford.

To Syracuse, N. Y., Capts. A. E. MOWRY, E. A. OLIVER, Chicago.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. L. H. GREEN, Johnston City.

Resignations of Lieuts. G. J. RIVARD, Jr., Assumption, and W. L. NOBLE, Chicago, accepted.

The following orders have been revoked: *To Camp Upton, N. Y.,* with the board examining the troops for cardiovascular diseases, Lieut. S. B. LEISER, Chicago. To Fort Oglethorpe for instruction, Lieut. Y. JORANSON, Chicago.

Indiana

To Camp Abraham Eustis, Va., camp hospital, from Camp Sherman, Capt. W. W. ROSE, La Porte.

To Camp Beauregard, La., base hospital, Capt. E. M. VAN BUSKIRK, Fort Wayne; Lieut. E. E. MACE, New Palestine.

To Camp Bowie, Texas, base hospital, Lieut. F. KLEINMAN, Hebron.

To Camp Devens, Mass., Lieut. J. C. THAYER, Arcadia.

To Camp Dodge, Iowa, Lieut. H. C. METCALF, Andersonville. Base hospital, from Fort Oglethorpe, Lieut. S. G. SMELSER, Richmond.

To Camp Gordon, Ga., base hospital, from Fort Oglethorpe, Capt. A. L. KNAPP, South Bend.

To Camp Greene, N. C., base hospital, from Camp Sevier, Lieut. M. S. TETERS, Indianapolis.

To Camp Joseph E. Johnston, Fla., base hospital, from Camp Cody, Capt. B. VAN SWERINGEN, Fort Wayne; from Fort Oglethorpe, Lieut. L. H. RATLIFF, Lawrence.

To Camp Meade, Md., from Fort McHenry, Lieuts. G. C. PRICE, Judson; J. E. FREED, Terre Haute.

To Camp Sevier, S. C., base hospital, from Fort Oglethorpe, Lieut. P. HOFFMAN, Decatur.

To Camp Sheridan, Ala., Lieut. R. V. HANNELL, LaFayette.

To Camp Sherman, Ohio, base hospital, from Fort Oglethorpe, Lieut. J. KENTLING, Bloomington.

To Fort Benjamin Harrison, Ind., base hospital, from Fort Oglethorpe, Lieuts. M. B. GWIN, Rensselaer; G. E. SMAIL, Veedersburg.

To Fort Oglethorpe for instruction, Capts. C. A. ROGERS, Freeport; A. W. LLOYD, Hammond; H. M. SCHULTZ, Logansport; Lieuts. E. E. BROCK, Anderson; A. R. KERR, Attica; C. E. QUINN, Burlington; H. H. BOTTS, Colfax; E. H. UNDERWOOD, Fort Wayne; F. W. DIXON, Franklin; W. H. MIKESCH, Hammond. On completion *to his proper station,* from Fort Sill, Lieut. M. B. GUTHRIE, Bedford.

To Fort Snelling, Minn., base hospital, from Fort Oglethorpe, Capt. J. C. BOHN, Terre Haute.

To Hoboken, N. J., from Camp Greene, Capt. H. J. WHITE, Hammond; from Camp Meade, Capt. J. M. FOUTS, Richmond; from Fort Oglethorpe, Lieut. T. P. GOVAN, Richmond.

To Lakewood, N. J., Capt. C. R. STRICKLAND, Indianapolis.

To report to the commanding general, Central Department, Capt. D. B. McCLARY, Gale.

To Walter Reed General Hospital, D. C., Lieut. L. C. SAMMONS, Shelbyville.

Iowa

To Camp Beauregard, La., base hospital, from Camp Bowie, Lieut. H. H. DILLEY, Des Moines; from Camp Travis, Lieut. R. M. CULLISON, Montezuma.

To Camp Bowie, Texas, base hospital, Lieut. B. S. BARNES, Shenandoah.

To Camp Cody, N. M., base hospital, Lieut. M. OCHS, Eldredge.

To Camp Custer, Mich., base hospital, *from Camp Pike,* Lieut. F. A. PRIESSMAN, Mechanicsville.

To Camp Dix, N. J., from Fort Riley, Lieut. W. DIVEN, Iowa City.

To Camp Dodge, Iowa, Lieuts. L. K. MEREDITH, Des Moines; O. F. PARISH, Grinnell; L. W. PENCE, State Center. Base hospital, Capt. G. T. McCAULIFF, Webster City.

To Camp Joseph E. Johnston, Fla., from Fort Oglethorpe, Capt. J. M. GARRETT, Fort Dodge.

To Camp Pike, Ark., base hospital, Capt. J. H. WHITELEY, Bonaparte; Lieuts. C. H. HERRMANN, Amana; J. R. WINNETT, Ebora.

To Camp Sherman, Ohio, base hospital, Capt. F. C. SAGE, Waterloo.

To Fort Des Moines, Iowa, Capt. H. B. GRATIOT, Dubuque.

To Fort Oglethorpe for instruction, Capts. C. B. BURKE, Algona; T. S. LACEY, Glenwood; Lieuts. L. K. MEREDITH, Des Moines; J. J. BEATTY, Farragut.

To Fort Riley, Capts. J. D. GEISSINGER, Spirit Lake; J. E. HOYT, Corning; Lieuts. G. R. GOULD, Conrad.

To Minneapolis, Minn.: Dunwoody Institute, from Camp Zachary Taylor, Lieut. J. S. COOPER, Burlington.

To Washington, D. C., Surgeon-General's Office, from Camp Jackson, Lieut. G. H. STEELE, Belmond.

To Wichita Falls, Texas, as instructor, Lieut. C. KAIL, Stratford.

Kansas

To Camp Beauregard, La., base hospital, Capt. F. C. CAVE, Winfield; Lieut. F. A. TRUMP, Ottawa. From Fort Oglethorpe, Lieut. L. D. MILLS, Greeley.

To Camp Cody, N. M., Lieut. W. H. ILIFF, Crestline. Base hospital, Capt. F. H. SLAYTON, Wichita.

To Camp Crane, Pa., from Fort Riley, Capt. J. N. SHERMAN, Thayer.

To Camp Pike, Ark., base hospital, Lieut. H. P. KNOWLES, Sterling.

To Camp Zachary Taylor, Ky., base hospital, from Fort Oglethorpe, Capt. H. G. SNYDER, Seneca.

To Fort Oglethorpe for instruction, Capts. V. H. BENTLEON, Kansas City; J. W. CHENEY, Wichita.

To Fort Riley, Lieuts. B. B. MASON, Grenola; R. O. PRESTON, Meriden. For instruction, Capt. L. VAN SAMS, Topeka; Lieuts. W. S. PROUT, Concordia; R. A. TAYLOR, Meriden; O. R. BRITTAIN, Salina; J. H. O'CONNELL, Topeka; A. H. NOSSAMAN, Whitewater.

To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieut. E. F. CLARK, Mayfield.

To New York, Neorological Institute, for intensive training, from Washington, Lieut. E. H. SCHLEGEL, Wichita.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to Walter Reed General Hospital,* Capt. H. WILKINSON, Kansas City.

Kentucky

To Camp Hancock, Ga., Capt. W. O. HOPPER, Perryville.

To Camp Pike, Ark., base hospital, Major W. A. JENKINS, Louisville.

To Camp Sherman, Ohio, base hospital, from Camp Zachary Taylor, Capt. E. T. GALLAGHER, Somerset.

To Camp Zachary Taylor, Ky., Lieut. J. L. VALLANDINGHAM, Lexington.

To Fort Oglethorpe for instruction, Capt. I. T. FUGATE, Louisville; Lieuts. E. C. MORGAN, Adairville; G. M. STURGELL, Ashland; R. W. MEADOR, Irvington; J. E. EDWARDS, *Lancaster;* E. L. PIRKEY, Louisville; H. R. SKAGGS, Terryville.

To Fort Ontario, N. Y., from Fort Oglethorpe, Lieut. H. G. HERRING, Lexington.

To Fort Snelling, Minn., base hospital, from Fort Oglethorpe, Lieut. R. C. SIEVERS, Pine Knot.

To Hampton, Va., Capt. S. D. WETHERBY, Middletown.

To Hoboken, N. J., from Walter Reed General Hospital, Lieut. W. G. ECKMAN, Covington. Base hospital, Lieut. C. E. VIDT, Russell.

To Hot Springs, N. C., Capt. B. K. MENEFEE, Covington.

To New Haven, Conn., Yale Army Laboratory School, for instruction, Capt. H. T. LIGGETT, Louisville.

To report to the commanding general, Central Department, Lieut. J. B. STROUD, Louisville.

Honorably discharged on account of physical disability existing prior to entrance into the service, Capt. C. THOMPSON, Louisville.

Louisiana

To Ann Arbor, Mich., State Psychopathic Hospital, for intensive training, from Fort Sam Houston, Capt. T. W. EVANS, Jackson.

To Camp Crane, Pa., from Camp Sherman, Lieut. W. B. HUNTER, Shreveport.

To Camp Joseph E. Johnston, Fla., from Fort Oglethorpe, Lieut. G. A. MAYER, New Orleans.

To Camp Upton, N. Y., base hospital, Capt. F. J. FRATER, Shreveport.

To Camp Wadsworth, S. C., Capt. T. R. RUDOLF, New Orleans.

To Fort Banks, Mass., from Camp Greene, Lieut. A. C. KAPPEL, Franklin.

To Fort Oglethorpe for instruction, Capts. A. B. BUGG, Belcher; R. C. TOMPKINS, Minden; Lieuts. T. B. WILSON, Baton Rouge; S. F. MARTIN, Minden; J. E. SLICOR, Shreveport; J. M. EHLERT, Springfield.

The following order has been revoked: *To Camp Lee*, base hospital, Lieut. T. LATIOLAIS, New Orleans.

Maine

To Camp Meade, Md., base hospital, Capt. J. P. TUNIS, Northeast Harbor.

To Fort Oglethorpe for instruction, Lieuts. R. W. CLARKE, Deer Isle; W. J. LEWIS, Freeport.

To Fort Slocum, N. Y., from Fort Oglethorpe, Lieut. W. H. KENNISON, Madison.

To Hoboken, N. J., base hospital, from Williamsbridge, Lieut. L. B. BRADFORD, Rockland.

To Washington, D. C., from Camp Wheeler, Lieut. H. L. WILLIAMS, Auburn.

The following order has been revoked: *To Camp Grant, Ill.*, from Fort Riley, Lieut. J. L. PEPPER, Madison.

Maryland

To Army Medical School, Lieut. J. P. SHEARER, Baltimore.

To Camp Crane, Pa., from Camp Wadsworth, Capt. F. A. G. MURRAY, Mount Savage.

To Camp Custer, Mich., base hospital, from Camp Meade, Capt. M. J. SIMMONS, Indian Head.

To Camp Dodge, Iowa, base hospital, Lieut. J. K. ORMOND, Baltimore, from Fort Oglethorpe, Lieut. F. P. SNODGRASS, Darlington.

To Camp McClellan, Ala., base hospital, from Camp Shelby, Major H. GROSS, Baltimore.

To Camp Meade, Md., base hospital, from Fort McHenry, Capt. J. E. BURNS, Baltimore. *To examine the command* for nervous and mental diseases, Capt. G. F. SARGENT, Townson.

To Fort Oglethorpe for instruction, Lieut. W. M. HOLLIDAY, Baltimore.

To Hoboken, N. J., from Camp Greene, Lieut. H. R. MANN, Mardela Springs; from Camp Meade, Lieut. E. F. GOTT, Baltimore.

Resignation of Capt. J. M. H. ROWLAND, Baltimore, accepted.

Massachusetts

To Baltimore, Md., Johns Hopkins Hospital, for instruction, from Fort Oglethorpe, Lieuts. H. C. PERKINS, Boston; E. E. SMITH, Webster.

To Camp Custer, Mich., base hospital, from Camp Pike, Lieut. F. H. RUSSELL, Wayside.

To Camp Dix, N. J., Lieuts. H. L. QUIMBY, Gloucester; W. F. BRADY, Holyoke; H. A. CALLAHAN, Jamaica Plain; J. B. A. JOHNSON, Lowell; W. T. HOLLAND, West Roxbury. Base hospital, Lieut. C. E. ALLARD, Dorchester.

To Camp Fremont, Calif., base hospital, Major E. A. COATES, JR., Chelsea.

To Camp Greene, N. C., from Camp Sevier, Lieut. J. N. DOYLE, Fall River. Base hospital, Capt. E. S. BAGNALL, Groveland; from Camp Sevier, Lieut. A. A. SHAPIRA, Boston. With the board examining troops for tuberculosis, from Camp Hancock, Lieut. J. J. COSGROVE, Westfield.

To Camp Hancock, Ga., base hospital, Lieuts. N. N. LEVINS, Boston; J. J. CURTIN, Waltham; from Camp Shelby, Lieut. A. N. BALL, Northampton.

To Camp Jackson, S. C., base hospital, from Fort Oglethorpe, Capt. R. B. SCALES, Boston.

To Camp Joseph E. Johnston, Fla., from Fort Oglethorpe, Lieut. J. E. CONNELLY, Brookline.

To Camp Sevier, S. C., base hospital, from Fort Oglethorpe, Lieut. J. P. KEARNEY, Lowell.

To Camp Shelby, Miss., from Camp Devens, Lieut. F. G. BRIGHAM, Boston.

To Camp Sheridan, Ala., from Camp Dodge, Lieut. J. J. McCAFFREY, Attleboro.

To Camp Sherman, Ohio, from Camp Wheeler, Lieuts. A. F. BUDRESKI, Brockton; I. W. FRAIM, Waltham.

To Fort [illegible]., from Northwestern Department, Major W. [illegible] r instruction, Capt. R. J. WARD, Worcester; [illegible] N. VOSE, Boston; W. W. COOK, Brookline; [illegible] LYNCH, Holyoke; J. P. A. BACON, Lawrence; A B. MILLS, Somerville; C. R. VINAL, Turner's Falls; E. F. HULL, West Stockbridge; E. R. LEIB, Worcester.

To Fort Snelling, Minn., base hospital, from Fort Oglethorpe, Capt. H. W. JEWETT, Lowell; Lieut. T. A. SHAUGHNESSY, Leominster.

To Governor's Island, N. Y., Major E. A. CODMAN, Boston.

To Hoboken, N. J., from Camp [illegible]LLINGS, Boston, from Camp Lee, Lieut. A.

To Lakewood, N. J., for instructi[illegible]seases, and on completion *to his proper station*, from Camp A. A. Humphreys, Lieut. H. A. WALKER, Somerville.

To New York, Hospital for Ruptured and Crippled, for instruction, from Hoboken, Lieut. L. S. KEMP, Canton.

To Plattsburg Barracks, N. Y., from Camp Lee, Lieut. M. W. PECK, Marblehead.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. W. J. DWYER, Boston.

Michigan

To Army Medical School for instruction, and on completion *to Boston, Mass.*, Harvard Graduate School of Medicine, for instruction, from Fort Oglethorpe, Major N. S. MACDONALD, Houghton.

To Camp Dix, N. J., base hospital, Capt. J. P. PRATT, Detroit.

To Camp Dodge, Iowa, Capt. J. C. CLIPPERT, Detroit.

To Camp Gordon, Ga., *to examine the command* for nervous and mental diseases, from Fort Oglethorpe, Capt. J. F. BERRY, Kalamazoo.

To Camp Jackson, S. C., base hospital, Capt. J. S. BROTHERHOOD, Grand Rapids.

To Camp Joseph E. Johnston, Fla., from Fort Oglethorpe, Capt. J. P. BLAND, Adrian.

To Camp Pike, Ark., as orthopedic surgeon, from Fort Oglethorpe, Lieut. J. W. GORDON, Detroit.

To Camp Sheridan, Ala., from Camp Dodge, Major B. R. CORBUS, Grand Rapids.

To Camp Upton, N. Y., as orthopedic surgeon, and on completion *to Boston, Mass.*, Harvard Graduate School of Medicine, for instruction, from Fort Oglethorpe, Capt. H. W. LONG, Escanaba.

To Camp Wheeler, Ga., base hospital, from Pittsburgh, Capt. F. P. BENDER, Caro.

To Camp Zachary Taylor, Ky., base hospital, Lieut. D. M. GRISWOLD, Crosse Points.

To Fort Oglethorpe for instruction, Capt. C. J. LARSON, Mogannee; Lieuts. R. F. MILLER, Adrian; J. WALTZ, Brown City; R. D. HENSEL, Detroit; W. A. SINGLETON, Hickory Corners; J. H. RAPP, Lansing; L. H. DUGUID, Ludington; D. W. PATTERSON, Port Huron.

To Fort Omaha, Neb., from Fairfield, Lieut. R. D. SCOTT, Rudyard, from Fort Wayne, Lieut. C. S. STRAIN, Rochester.

To Fort Sheridan, Ill., base hospital, from Fort Oglethorpe, Capt. V. J. HOOPER, Detroit.

To Otisville, N. Y., from New Haven, Capt. R. B. HARKNESS, Houghton.

To New York, Neurological Institute, for intensive training, Capt. H. A. LUCE, Detroit.

To West Point Military Academy, Capt. G. E. WINTER, Jackson.

The following order has been revoked: *To Camp Forrest, Pa.*, for duty, from Camp A. A. Humphreys, Lieut. H. L. HURLEY, Jackson.

Minnesota

To Ann Arbor, Mich., State Psychopathic Hospital, for intensive training, from Washington, D. C., Lieut. W. B. MARTIN, Fergus Falls.

To Camp Cody, N. M., Capt. O. H. WILCOX, Minneapolis.

To Camp Crane, Pa., from Camp Devens, Capt. F. P. MOERSCH, Minneapolis; from Camp Dodge, Capt. C. E. CONNOR, Minneapolis; from Jefferson Barracks, Lieut. L. M. KEENE, Alexandria; from Memphis, Capt. A. J. WENTWORTH, Mankato.

To Camp Custer, Mich., base hospital, from Camp Pike, Lieut. P. R. HANKEE, Cannon Falls.

To Camp Dodge, Iowa, base hospital, Capts. F. W. SPICER, Duluth; A. W. HILGER, St. Paul.

To Camp Forrest, Ga., from Fort Oglethorpe, Lieut. D. TOWNSEND, Belgrade.

To Camp Fremont, Calif., base hospital, from Camp Devens, Lieut. O. A. GROEBNER, New Ulm.

To Camp Sherman, Ohio, base hospital, from Camp Zachary Taylor, Lieut. H. C. McINTOSH, St. Paul.

To Camp Wadsworth, S. C., from Camp Dodge, Lieuts. C. J. McGUIRE, Altura; A. GULLIXSON, Bricelyn; M. SEHAM, Minneapolis.

To Camp Zachary Taylor, Ky., base hospital, Lieut. F. E. KUNCE, St. Paul.

To Fort Banks, Mass., from Camp Greene, Lieut. B. S. BOHLING, Sandstone.

To Fort Oglethorpe for instruction, Capt. J. R. KUTH, Duluth.

To Fort Riley, Capt. K. H. SCHMIDT, Minneapolis.

To Fort Snelling, Minn., base hospital, from Fort Oglethorpe, Capt. J. F. LYNN, Waseca.

To Hoboken, N. J., from Camp Greene, Capt. W. C. CHAMBERS, Blue Earth, from Fort Oglethorpe, Lieut. U. R. WILSON, Brainerd.

To Washington, D. C., Surgeon-General's Office, from Rochester, Col. W. J. MAYO, Rochester.

Honorably discharged on account of physical disability existing prior to entrance into the service, Capt. R. E. MORRIS, Minneapolis.

The following order has been revoked: *To Camp Grant, Ill.*, from Madison, Lieut. J. D. WALLER, Willmont.

Mississippi

To Camp Beauregard, La., base hospital, from Camp Bowie, Lieut. H. C. DENSON, Vicksburg.

To Camp Gordon, Ga., base hospital, from Camp Shelby, Capt. H. P. BOSWELL, New Albany.

To Camp Greene, N. C., from Camp Wadsworth, Lieut. J. G. BACKSTROM, Tutwiler.

To Camp Jackson, S. C., base hospital, from Camp Joseph E. Johnston, Capt. J. S. EWING, Vicksburg.

To Camp Wadsworth, S. C., base hospital, Lieut. W. A. TOOMER, Tupelo.

To Fort Oglethorpe for instruction, Lieut. W. R. GRAVES, Jackson.

To Fort Omaha, Neb., from Fairfield, Lieut. J. M. REYNOLDS, Shubuta.

Honorably discharged, Capt. O. R. FORE, Flora.

Missouri

To Camp Beauregard, La., base hospital, from Fort Oglethorpe, Lieuts. M. F. SEWELL, Kansas City; E. A. SCOTT, St. Louis.

To Camp Bowie, Texas, base hospital, Capt. F. J. SULLIVAN, St. Louis.

To Camp Cody, N. M., Lieut. C. A. GIBBS, Greensburg.

To Camp Crane, Pa., from Camp Bowie, Lieut. J. M. BLAKEMORE, St. Louis.

To Camp Dix, N. J., from Fort Riley, Lieuts. W. L. ABNEY, Blackwater; C. M. COUNSEL, Kansas City. Base hospital, Capt. Y. D. CRAVEN, Excelsior Springs; Lieut. D. A. THOMSON, St. Louis.

To Camp Dodge, Iowa, Capt. E. POWERS, Carthage; Lieuts. D. J. ROYER, Joplin; A. H. RINGEN, Sweet Springs.

To Camp Greene, N. C., from Fort Oglethorpe, Lieut. A. W. EBELING, Warrenton.

To Camp Meade, Md., from Fort McHenry, Major R. BURNS, JR., St. Louis.

To Camp Pike, Ark., from duty as a private, Lieut. H. L. BAEPLOR, St. Louis. Base hospital, Capt. J. H. GROSS, Webster Groves; Lieut. J. D. VAM CLEVE, Malden. *To examine the command* for nervous and mental diseases, Capt. H. S. MAJOR, Fulton.

To Camp Shelby, Miss., from Camp Devens, Lieut. W. K. BROWN, St. Louis.

To Camp Sheridan, Ala., Lieuts. S. A. STADLER, Kansas City; G. W. HAWKINS, Salisbury.

To Camp Sherman, Ohio, base hospital, Capt. I. J. HARRIS, St. Louis; from Camp Zachary Taylor, Lieut. H. S. MAXWELL, Hopkins.

To Fort Oglethorpe for instruction, Capts. O. C. HORST, Springfield; O. A. AMBROSE, R. C. HARRIS, St. Louis; Lieuts. D. J. ROYER, Joplin; F. A. JOHNSON, Kohoka; F. W. HAYNES, J. T. MALONE, St. Louis.

To Fort Ontario, N. Y., Lieut. L. B. BROWN, North Berwick.

To Fort Riley, Capts. R. D. MOORE, Clayton; S. C. VAUGHN, Hurricane; J. W. BOYD, Sarcoxie; C. B. TRADER, Sedalia; Lieut.

S. E. PEDON, St. Louis; from Camp Cody, Major E. L. OPIE, St. Louis. For instruction, Capts. E. L. MATHIAS, Kansas City; J. F. HARRISON, Mexico; A. SCHUCK, St. Louis; T. A. BLACKMORE, Windsor; Lieuts. L. M. DALEY, Hamilton; E. A. ALBERS, C. WEHR, Kansas City; R. R. KELLEY, Savannah; J. S. HOMAN, O. T. UPSHAW, St. Louis.

To Hoboken, N. J., from Camp Jackson, Lieut. D. P. FERRIS, St. Louis; from Fort Sheridan, Capt. E. L. COOLEY, St. Louis.

To Mineola, L. I., N. Y., Hazelhurst Field, from Camp Dick, Capt. A. L. LUDWICK, Kansas City.

To New Haven, Conn., Yale Army Laboratory School, for instruction, Capt. S. E. VAUGHN, Hurricane.

To report to the commanding general, Central Department, Capt. T. A. McCLENNAN, Marshall; Lieut. C. P. MEGEE, Hartsburg.

To Waynesville, N. C., from New Haven, Lieut. E. J. BUTZKE, Bowling Green.

To Whipple Barracks, Ariz., from Camp MacArthur, Capt. W. E. CARY, Kansas City.

To Wichita Falls, Texas, from Camp Dick, Lieut. C. C. COATS, Winston.

Honorably discharged, Capt. A. M. GANAWAY, Albany.

The following orders have been revoked: *To Camp Devens, Mass.*, from Orono, Me., Capt. E. X. LINK, St. Louis. *To Camp Sherman, Ohio*, from Indianapolis, Lieut. H. L. HESS, Kansas City.

Montana

To Camp Fremont, Calif., base hospital, Lieut. W. G. PALM, Joplin.

To Fort Riley, Lieut. W. R. SMITH, Stockett. For instruction, Lieut. R. R. FRIZZELL, Great Falls.

To report to the commanding general, Western Department, Capt. L. BERNHEIM, Butte.

The following order has been revoked: *To Fort Oglethorpe* for instruction, from Fort Riley, Lieut. C. A. GARDNER, Columbus.

Nebraska

To Boston, Mass., Harvard Graduate School of Medicine, for instruction, and on completion *to his proper station*, from Camp Dodge, Capt. H. R. MINER, Falls City.

To Camp Beauregard, La., base hospital, from Fort Oglethorpe, Capt. I. L. BOGEN, Lincoln.

To Camp Crane, Pa., from Camp Lee, Lieut. T. E. ATKINSON, Mullen.

To Camp Dodge, Iowa, Capt. G. H. GILMORE, Murray.

To Camp Logan, Texas, base hospital, Capt. C. A. ALLENBURGER, Columbus.

To Camp Zachary Taylor, Ky., base hospital, Lieut. S. G. ZEMER, Lincoln.

To Fort Oglethorpe for instruction, Lieut. R. L. SMITH, Lincoln.

To Fort Riley, Lieut. L. L. CRAMER, Harrison. For instruction, Capt. O. H. MARGARET, Papillion; Lieuts. H. G. THOMPSON, David City; W. T. WILDHABER, Plymouth.

To New Haven, Conn., Yale Army Laboratory School, from Fort Riley, Lieut. W. C. BECKER, Papillion.

To San Francisco, Calif., for instruction, and on completion *to Letterman General Hospital*, from Arcadia, Capt. F. E. BRAUCHT, Coleridge.

Resignation of Lieut. H. B. FROSH, Lincoln, accepted.

The following order has been revoked: *To Camp Grant, Ill.*, from Fort Riley, Capt. F. D. BURGESS, Cedar Rapids.

Nevada

To Fort Riley for instruction, Lieut. R. ST. CLAIR, Reno.

New Hampshire

To Camp John Wise, Texas, from Camp Kelly, Capt. D. R. CHASE, Lebanon.

To Fort Oglethorpe for instruction, Capts. H. B. CARPENTER, Lancaster; P. J. McLAUGHLIN, Nashua; Lieuts. J. J. BUCKLEY, Milton; A. DAUDELIN, Nashua; A. C. LISTON, North Walpole.

New Jersey

To Baltimore, Md., Johns Hopkins Hospital, for instruction, from Fort Oglethorpe, Lieut. W. A. NEWELL, Trenton.

To Camp A. A. Humphreys, Va., Lieut. B. A. TREIBER, Trenton.

To Camp Dix, N. J., Capt. C. B. GRIFFITHS, Newark; Lieut. H. S. GARRETT, Park Ridge.

To Camp Meade, Md., from Fort McHenry, Capt. L. E. POOLE, West Hoboken; Lieuts. G. P. MEYER, Camden; L. M. KALAHER, Jersey City. As orthopedic surgeon, from Fort Oglethorpe, Lieut. F. H. VON HOFE, Orange.

To Camp Shelby, Miss., base hospital, from Camp Sevier, Capt. S. T. QUINN, Elizabeth.

To Colonia, N. J., Lieut. D. M. P. MAGEE, Red Bank.

To Fort Oglethorpe for instruction, Capts. C. L. BOSSERT, Atlantic City; J. W. FARROW, Dover; F. B. MITCHELL, East Orange; W. A. McMURTRIE, Morristown; Lieuts. R. D'A. DENIG, Hackensack; B. M. HANCE, Hackettstown; H. J. PERLBERG, Jersey City; F. G. STRAHAN, Long Branch; JOHN D. TIDABACK, Newark; F. D. CRAWFORD, Ridgefield Park; H. D. WILLIAMS, Trenton; from Rockefeller Institute, Capt. C. R. NEARD, East Orange.

To Fort Sheridan, Ill., base hospital, from Camp Dix, Major J. N. TEETER, Englewood.

To Mineola, N. Y., Lieut. J. W. HURFF, Newark.

To New Haven, Conn., Lieut. G. P. CURTIS, Union.

To report to the governor of New Jersey as Medical Aide, Capt. H. B. COSTILL, Trenton.

To Williamsbridge, N. Y., from Camp Upton, Major W. A. SHERWOOD, Jersey City.

The following order has been revoked: *To Fort Oglethorpe* for instruction, Lieut. J. B. BOYD, Farmingdale.

New Mexico

To Fort Riley for instruction, Capt. B. E. HEDDING, Santa Fe; Lieut. H. W. GIBBS, Wagon Mound.

New York

To Ann Arbor, Mich., State Psychopathic Hospital, for intensive training, from Fort Oglethorpe, Lieuts. J. V. SWIERAT, Kings Park; J. J. LEARY, Utica.

To Baltimore, Md., to instruct enlisted men, Capt. W. G. PHILLIPS, Jr., Brooklyn.

To Camp A. A. Humphreys, Va., base hospital, Capt. H. L. RAYMOND, Collins.

To Camp Beauregard, La., base hospital, from Fort McHenry, Lieut. S. C. WOLFF, New York.

To Camp Cody, N. M., base hospital, from Fort Oglethorpe, Capt. B. C. DOUST, Syracuse.

To Camp Crane, Pa., from Fort Sam Houston, Capt. J. C. DAVIS, Rochester; from Newport News, Lieut. A. C. SILVERMAN, Syracuse; from New York, Lieut. H. W. WHEATON, Gloversville.

To Camp Custer, Mich., base hospital, from Camp Pike, Capts. N. W. JANNEY, L. H. TAFT, M. WARREN, New York.

To Camp Dix, N. J., Lieut. G. C. HACKETT, Portville. Base hospital, Capts. F. L. NELSON, Brooklyn; F. W. SPLINT, New York; from Camp Wheeler, Capt. D. T. McPHAIL, New York.

To Camp Forrest, Ga., from Camp Jackson, Lieut. W. C. MacDONALD, New York.

To Camp Gordon, Ga., as orthopedic surgeon, and on completion *to Boston, Mass.*, Harvard Graduate School of Medicine, for instruction, from Fort Oglethorpe, Lieut. T. L. McNAMARA, Corning. *To examine the command* for nervous and mental diseases, Lieut. T. W. NEUMANN, Poughkeepsie.

To Camp Greene, N. C., base hospital, from Camp Devens, Lieut. H. C. HAVILAND, Albany; from Camp Sevier, Capt. J. L. BRYSON, New York. *To examine the command* for mental and nervous diseases, Capt. I. HOLLEY, Brooklyn.

To Camp Hancock, Ga., base hospital, Capt. C. O. SAYRES, Rochester.

To Camp Jackson, S. C., base hospital, Major O. M. SCHWERDTFEGER, Capt. H. V. GUILE, New York.

To Camp Joseph E. Johnston, Fla., from Fort Oglethorpe, Major W. C. MILLER, New York; Lieut. F. L. BARNUM, Kingston.

To Camp Lewis, Wash., base hospital, from Camp Upton, Lieut.-Col. J. D. WHITHAM.

To Camp Logan, Texas, as orthopedic surgeon, from Fort Oglethorpe, Lieut. J. W. SMITH, Brooklyn.

To Camp McClellan, Ala., from Walter Reed General Hospital, Lieut. W. RAIM, Brooklyn.

To Camp Meade, Md., from Fort McHenry, Capts. H. W. JACKSON, New York; R. L. CROCKETT, Oneida; Lieut. W. E. DIEFENBACH, Nunda. Base hospital, Lieut. G. K. RHODES, Schenectady.

To Camp Pike, Ark., with the board examining the troops for tuberculosis, from Camp Sherman, Capt. E. P. EGLES, New York.

To Camp Raritan, Ky., as camp psychiatrist, from Camp Zachary Taylor, Capt. W. A. CONLON, Central Islip.

To Camp Sevier, S. C., base hospital, Lieut. S. McLEAN, New York.

To Camp Sheridan, Ala., base hospital, from Fort Oglethorpe, Lieut. H. C. JOHNSTON, New York.

To Camp Upton, N. Y., to examine the command for nervous and mental diseases, from New York, Lieut. S. L. REISER, New York.

To Camp Wadsworth, S. C., as orthopedic surgeon, and on completion *to Boston, Mass.*, Harvard Graduate School of Medicine, from Fort Oglethorpe, Lieut. F. H. CARBER, Forest Hills. *To examine the command* for nervous and mental diseases, Lieut. H. W. KEMP, Brooklyn.

To Colonia, N. J., Capt. L. R. McCOLLOM, New York.

To Fort McHenry, Md., from Camp Custer, Major J. B. BISSELL, New York.

To Fort Oglethorpe, from Camp Wheeler, Lieuts. G. N. ACKER, 2d, Fort H. G. Wright; W. C. FARGO, New York. For instruction, Capts. M. L. SECCOMB, Milo; E. ADAMS, B. J. BECK, W. C. BOWERMAN, New York; F. OVERTON, Patchogue; L. R. MELLOR, Syracuse; Lieuts. J. GOULD, Allegheny; E. LEVY, W. MOEHLE, Brooklyn; R. L. COOLEY, E. J. LUDWIG, J. F. TRUDNOWSKI, Buffalo; I. W. KAHN, New York; from Camp Colt, J. J. CLARK, Olean; from duty as an enlisted man, Lieut. W. E. GALLAGHER, Niagara Falls.

To Fort Omaha, Neb., from Fort Wayne, Capt. M. B. WALTER, Lieut. J. J. LANCER, New York.

To Fort Ontario, N. Y., Capt. J. C. SMITH, Oneonta.

To Fort Snelling, Minn., base hospital, from Camp Lee, Major J. M. W. SCOTT, Schenectady.

To Hoboken, N. J., Major G. G. RAMBAUD, New York; from Camp Devens, Major C. H. YOUNG, New York; Capt. S. R. LEAHY, Brooklyn; from Camp Dix, Lieuts. A. G. LANGMANN, W. F. McTAGUE, New York; from Camp Greene, Lieuts. J. R. BOYD, New York; L. J. ATKINS, Olean; from Camp Meade, Capt. R. G. HOLT, Schenectady; from Fort Oglethorpe, Capt. T. H. ORSER, Cold Brook. Base hospital, from Camp Gordon, Capt. A. L. WARNER, Schenectady; from Camp Grant, Major G. W. JEAN, New York.

To Jefferson Barracks, Mo., base hospital, from Fort Oglethorpe, Lieut. J. BRANOWER, New York.

To Lakewood, N. J., from Fort Oglethorpe, Lieuts. W. W. LASHER, A. M. MORGENLANDER, New York.

To New Haven, Conn., Capt. D. B. JEWETT, Rochester; Lieut. S. A. BINDERMAN, New York; from Camp Zachary Taylor, Lieut. S. C. DARDEN, Poughkeepsie.

To New York, Bellevue Hospital, for instruction and on completion *to Camp Meade, Md.*, base hospital, Capt. F. COONLEY, West New Brighton. Neurological Institute, for instruction, Lieut. F. S. PIERSON, Blackwell's Island.

To Otisville, N. Y., from New Haven, Capt. F. A. JOHNSON, New York.

To report to the commanding general, Eastern Department, Capts. G. W. SIMRELL, Brooklyn; L. R. ATKINS, New York.

To Rockefeller Institute, from New Haven, Lieut. S. T. FORTUINE, New York.

To Syracuse, N. Y., Capt. C. S. LITTLE, Thiells. *To examine the command* for nervous and mental diseases, from Camp Shelby, Lieut. H. W. DAVIS, Poughkeepsie.

To Tobyhanna, Pa., as camp surgeon, from Eastern Department, Major J. R. HICKS, Rosebank.

To Washington, D. C., Surgeon-General's Office, from Philadelphia, Capt. C. E. E. PANNACI, Gloversville.

Resignation of Lieut. W. F. WATTON, Brooklyn, accepted.

The following orders have been revoked: *To Camp Wadsworth, S. C.*, from Camp Meade, Lieut. P. J. HIRST, Middle Grove; from Camp Upton, Lieut. M. A. RAMIREZ, New York.

North Carolina

To Camp Custer, Mich., as tuberculosis examiner, from Camp Meade, Capt. T. FRAZER, Asheville.

To Camp Jackson, S. C., from duty as a contract surgeon, Capt. J. R. WILLIAMS, Asheville.

To Camp Sheridan, Ala., Lieut. P. B. HALL, Belmont.

To Fort Oglethorpe for instruction, Lieuts. W. S. CRAWFORD, Bridgewater; J. N. HEGE, Clemons; J. F. FOSTER, Kenly; W. P. SMITH, Midland; from West Point, Miss., Lieut. J. J. BAREFOOT, Graham.

To Hot Springs, N. C., Lieut. W. N. McDUFFIE, Sisco.

To Lakewood, N. J., Capt. T. E. DAVIS, Winston-Salem.

To New Haven, Conn., from Camp A. A. Humphreys, Capt. G. S. MACPHERSON, Highlands.

North Dakota

To Camp Beauregard, La., base hospital, from Camp Pike, Lieut. F. I. DARROW, Fargo.

To Camp Custer, Mich., base hospital, Lieut. R. A. SCOTT, Crystal.

To Camp Dodge, Iowa, Capt. J. A. CARTER, Warwick.

To Fort Riley for instruction, Lieut. O. T. BENSON, Glen Ullin.

To Hoboken, N. J., from Camp Wadsworth, Capt. J. P. AYLEN, Fargo; from Fort Oglethorpe, Lieut. W. L. COWPER, Michigan.

Honorably discharged on account of physical disability incurred in line of duty, Capt. G. A. CARPENTER, Fargo.

Ohio

To Camp Beauregard, La., base hospital, Capt. H. S. MAXWELL, Lisbon; from Camp Sherman, Capt. G. F. GLASS, Cleveland.

To Camp Cody, N. M., base hospital, Capt. W. F. LAUTERBACH, Dayton; Lieut. M. H. SHIPLEY, Cleveland.

To Camp Greene, N. C., with the board examining the troops for tuberculosis, [illegible] Lieut. C. R. DEEDS, Dalton.

To Camp [illegible] R. H. SMITH, Lancaster; J. C. McGINNIS, [illegible] NOX, Niles; Lieut. J. F. DECOURSEY, Cincin[illegible] pton, Lieut. E. C. GOLDCAMP, Youngstown; [illegible], Lieut. F. L. RHODES, Toledo. Base hospital, from Camp Grant, Capt. L. C. GROSH, Toledo.

To Camp Joseph E. Johnston, Fla., from Fort Oglethorpe, Capt. L. B. GOODYEAR, Toledo; Lieut. J. H. POULTON, Springfield.

To Camp McClellan, Ala., from Walter Reed General Hospital, Major D. M. ROBERTS, New Richmond.

To Camp Sheridan, Ala., Lieuts. E. T. ROBINSON, Cleveland; C. R. KITSMILLER, Fresno.

To Camp Upton, N. Y., as orthopedic surgeon, and on completion *to Boston, Mass.*, Harvard Graduate School of Medicine, for instruction, from Fort Oglethorpe, Lieut. L. W. KRAUSS, Cleveland.

To Camp Wheeler, Ga., from Camp Cody, Lieut. V. J. FRUTH, Fostoria; from Camp Devens, Lieut. R. J. GIESELER, Cincinnati.

To Camp Zachary Taylor, Ky., Capt. E. C. COWLES, Cleveland; Lieut. L. F. PERFUS, Salem.

To Cincinnati, Ohio, to examine enlisted men, Capt. A. E. OSMOND, Cincinnati.

To Fort Oglethorpe for instruction, Capts. S. B. McMASTER, Akron; J. MACLACHLAN, Cleveland; E. W. SHANK, Dayton; G. H. IRVIN, Orville; C. L. JONES, Springfield; R. C. CHAMBERLAIN, W. K. CHAMBERLIN, Tiffin; H. J. MORGAN, Toledo; Lieuts. J. O. STOUT, Ashville; J. L. SADDLER, Bay Village; E. I. FOGEL, S. WOLF, Cincinnati; G. S. WILCOX, Columbus, Grove; H. H. WEBSTER, Dayton; C. E. HOLZER, Gallipolis; H. H. LOWE, Leesburg; J. W. JOLLEY, Morral; E. A. POWELL, North Baltimore; J. W. NORMAN, St. Paris; J. F. BEERMAN, E. M. COLLIER, J. F. WRIGHT, Toledo; D. H. MOORE, Urbana; R. K. FINLEY, Xenia; T. H. LAUTENSCHLAGER, *Youngstown*.

To Fort Omaha, Neb., from Fort Wayne, Lieut. M. L. SMITH, Urbana.

To Fort Riley, Capt. J. FAUSTER, Paulding; Lieuts. J. H. RALSTON, Bedford; E. C. NOHLS, South Charleston.

To New Haven, Conn., Yale Army Laboratory School, for instruction, Capt. C. W. THOMPSON, Cleveland.

To New York, from Columbus, Ohio, Capt. F. E. CUTLER, Cleveland.

To Otisville, N. Y., from New Haven, Lieut. W. F. BAY, Columbus.

To report to the commanding general, Central Department, Capt. F. C. LEE, Cleveland.

To Walter Reed General Hospital, from Fort Oglethorpe, Lieut. B. JOHNS, Cincinnati.

Honorably discharged on account of physical disability existing prior to entrance in the service, Lieuts. R. R. SATTLER, Cincinnati; T. F. HIGGINS, Toledo.

The following orders have been revoked: *To Camp Dix, N. J.*, base hospital, Capt. D. C. HOUSER, Urbana. *To Cleveland, Ohio*, Lieut. R. G. PEARCE, Cleveland.

Oklahoma

To Camp Cody, N. M., Capt. J. R. PHELAN, Oklahoma City.

To Camp Crane, Pa., from Camp Pike, Lieut. J. J. GABLE, Norman.

To Camp Custer, Mich., base hospital, from Camp Pike, Lieut. R. G. SHERWOOD, Ochelata.

To Camp Dodge, Iowa, Capt. J. S. LITTLE, Minco. Base hospital, from Fort Oglethorpe, Lieut. J. B. SHANNON, Pauls Valley.

To Camp Jackson, S. C., base hospital, from Fort Oglethorpe, Lieut. S. B. JONES, Sallisaw.

To Camp Pike, Ark., base hospital, Lieut. H. D. BOSWELL, Henryetta.

To Camp Shelby, Miss., base hospital, Capt. R. E. RUNKLE, El Reno.

To Camp Sheridan, Ala., from Fort Logan H. Roots, Major F. H. CLARK, El Reno.

To Fort Howard, Md., from New York, Major R. L. KURTZ, Nowata.

To Fort Riley, Capt. J. E. HUGHES, Shawnee; Lieuts. W. A. MORELAND, Idabel; S. A. McKEEL, Sallisaw; J. R. SWANK, St. Enid. Base hospital, Lieut. W. W. WELLS, Oklahoma City. For instruction, Lieut. W. A. HOWARD, Chelsea.

To New Haven, Conn., Yale Army Laboratory School, for instruction, Capt. J. E. HUGHES, Shawnee.

To report to the commanding general, Southern Department, Lieut. J. T. MILLS, Allen.

To Waco, Texas, Rich Field, from Mineola, Lieut. W. B. NEWELL, Hunter.

Honorably discharged, Lieut. G. M. COMBEST, Lamar. On account of physical disability existing prior to entrance into the service, Lieut. S. N. STONE, Edmond.

Oregon

To Army Medical School for instruction, and on completion *to Boston, Mass.*, Harvard Graduate School of Medicine, for further instruction, from Fort Oglethorpe, Capt. C. J. McCUSKER, Portland.

To Fort Oglethorpe for instruction, Capt. H. G. PARKER, Portland.

To Vancouver Barracks, Wash., as post surgeon, from San Francisco, Major E. C. DALTON, Portland.

The following order has been revoked: *To Camp Grant*, from Fort Riley, Capt. B. F. SCAIEFE, Eugene.

Pennsylvania

To Ann Arbor, Mich., State Psychopathic Hospital, for intensive training, from Camp A. A. Humphreys, Lieut. J. M. MIRMAN, Philadelphia; from Washington, Lieuts. J. P. BOYLE, Philadelphia; W. L. HAIR, Roaring Springs.

To Baltimore, Md., Johns Hopkins Hospital, Lieut. E. P. DICKINSON, St. Michael.

To Camp A. A. Humphreys, Va., base hospital, Lieuts. C. A. GUNDY, Lewisburg; E. T. JONES, St. Clair.

To Camp Beauregard, La., base hospital, from Fort Oglethorpe, Lieut. W. V. COYLE, Philadelphia.

To Camp Crane, Pa., from Camp Devens, Lieut. H. F. MOFFITT, Pittsburgh; from Camp Meade, Capt. S. R. SKILLERN, Lieut. E. S. DILLON, Philadelphia.

To Camp Custer, Mich., Capt. T. BAKER, Pittsburgh.

To Camp Dix, N. J., Lieuts. J. E. WILSON, Canonsburg; L. J. LANX, Sayre.

To Camp Dodge, Iowa, base hospital, from Fort Sill, Major C. A. E. CODMAN, Philadelphia.

To Camp Forrest, Ga., from Fort Oglethorpe, Lieuts. H. P. SMITH, L. L. STEPP, Pittsburgh.

To Camp Gordon, Ga., base hospital, from Fort Oglethorpe, Lieuts. R. E. PILGRIM, Chester; J. H. READING, JR., Philadelphia.

To Camp Greene, N. C., Capts. G. W. FARQUHAR, Belleville; G. D. MERVINE, Bitumen; Lieuts. C. H. METZGER, Altocha; T. L. SISNEY, *Boyers*; J. L. RICHARDS, *Philadelphia*; T. A. MONAHAN, Shenandoah; from Camp Wadsworth, Major H. T. PRICE, Pittsburgh. Base hospital, from Walter Reed General Hospital, Lieut. H. A. WICK, New Bethlehem.

To Camp Hancock, Ga., from Williamsbridge, Lieut. B. H. GUISTWHITE, Philadelphia. Base hospital, Lieuts. W. H. KELSEA, McDonald; M. B. MAGOFFIN, Mercer; R. W. JOHNSTONE, Selinsgrove; R. B. McCAY, Sunbury.

To Camp Holabird, Md., from Camp MacArthur, Lieut. J. H. MOSS, Archibald.

To Camp Jackson, S. C., base hospital, from Fort Oglethorpe, Capt. W. R. SHOEMAKER, Wilmerding.

To Camp Joseph E. Johnston, Fla., Capt. J. V. HARSHA, Carrick.

To Camp Lee, Va., from Willoughby, Ohio, Lieut. M. M. WOLFE, New Kensington.

To Camp McClellan, Ala., from Camp Joseph E. Johnston, Lieut. W. E. ANDREW, Pen Argyle; *from Walter Reed General Hospital*, Capt. C. H. INGRAM, Pittsburgh.

To Camp Meade, Md., from Fort McHenry, Capt. E. PAINE, Clifton Heights; Lieuts. W. L. SNYDER, Brookville; A. D. FERGUSON, Eddystone; L. J. DEAMY, Philadelphia.

To Camp Sheridan, Ala., base hospital, from Camp Dix, Lieut. L. S. DUNN, Chester.

To Camp Sherman, Ohio, from Camp Wheeler, Capt. H. B. PATTERSON, Pittsburgh; Lieut. G. H. BLOOM, Philadelphia. Base hospital, Capt. I. OHLMAN, Pittsburgh.

To Camp Upton, N. Y., as orthopedic surgeon, and on completion *to Boston, Mass.*, Harvard Graduate School *of Medicine, for instruction*, from Fort Oglethorpe, Capt. R. P. SMITH, Port Loudon. With the board examining the command for cardiovascular diseases, from Lakewood, N. J., Lieut. W. D. STROUD, Philadelphia.

To Camp Zachary Taylor, Ky., Lieuts. J. J. QUINN, Lansford; J. J. PRICE, Olyphant; J. L. FLANIGAN, Silver Creek. Base hospital, from Camp Hancock, Capt. C. M. ISEMAN, Ellwood City; from Camp Meade, Lieuts. A. I. BARON, Philadelphia; C. F. BIGONEY, Pittsburgh.

To Fort Benjamin Harrison, base hospital, from Fort Oglethorpe, Lieut. J. R. SWARTZLANDER, Doylestown.

To Fort Oglethorpe for instruction, Capts. G. W. FARQUHAR, *Belle*ville; G. D. MERVINE, Bitumen; W. F. COPE, Easton; E. L. ERHARD, Glassport; R. L. ERTSMAN, Pittsburgh; Lieuts. C. H. METZER, Altocha; T. L. SISNEY, Royers; T. H. HARTER, East Brady; J. J. SWEENEY, Heckschersville; J. D. KEIPER, Johnstown; B. S. KOFFORD, Oil City; S. BARON, J. C. HARTMAN, F. R. McDONALD, J. L. RICHARDS, Philadelphia; T. A. MONAHAN, Shenandoah; G. C. GLENN, State College; C. W. BEALS, St. Petersburg; J. G. LOGUE, Williamsport; from Camp Wheeler, Capt. V. J. FENERTY, Philadelphia.

To Fort Ontario, N. Y., Lieut. D. R. EVANS, Pittsburgh.

To Hoboken, N. J., from Camp Greene, Capt. W. P. EVANS, Middletown; from Camp Jackson, Lieut. A. W. FISHER, Fountain Springs; from Camp Sherman, Capt. J. H. BARACH, Lieut. R. M. COCHRANE, Pittsburgh.

To New Haven, Conn., Capt. S. A. LOWENBERG, Philadelphia. *To Yale Army Laboratory School*, for instruction, Lieut. H. A. KIPP, Pittsburgh.

To New York City, Neurological Institute, for instruction, Capt. R. J. BEHAM, Pittsburgh. For intensive training, Lieut. C. D. FOX, Cynwyd.

To Philadelphia, from duty as a contract surgeon, Capt. W. G. RAMSEY, Philadelphia.

To report to the commanding general, Eastern Department, Capts. A. H. ELLIOTT, Avalon; G. J. VAN VECHTON, Scranton.

To Washington, D. C., from Fort Oglethorpe, Lieut. C. S. MILLER, Philadelphia.

The following orders have been revoked: *To Fort Myer, Va.*, from Pittsburgh, Capt. G. B. MORELAND, Edgewood. *To Fort Oglethorpe*, from West LaFayette, Capt. H. BRADY, Grays Landing.

Porto Rico

To Camp Las Casas, P. R., Lieuts. A. J. CASANOVA, Penuelas; F. J. CAPO, JR., Santurce; from Fort Oglethorpe, Lieut, M. B. CABALLERO, Humacao.

Rhode Island

To Camp Meade, from Fort McHenry, Capt. J. B. FERGUSON, Providence. Base hospital, Lieut. F. A. COUGHLIN, Providence.

To Fort Oglethorpe for instruction, Lieut. W. W. STREET, Providence.

South Carolina

To Camp Crane, Pa., from Camp Zachary Taylor, Capt. J. WALLACE, Easley.

To Camp Joseph E. Johnston, Fla., from Fort Oglethorpe, Lieut. C. J. MILLER, Cottageville.

To Camp Newton D. Baker, Texas., base hospital, from Camp Gordon, Lieut. A. S. BLANCHARD, Williston.

To Camp Zachary Taylor, Ky., Lieut. R. B. DAY, Pendleton. Base hospital, Lieut. H. C. RAYSOR, St. Matthews.

To Fort Banks, Mass., from Camp Greene, Lieut. W. B. BAKER, Hemingway.

To Fort Benjamin Harrison, base hospital, from Fort Oglethorpe, Lieut. W. T. GIBSON, Batesburg.

To Fort Oglethorpe for instruction, Lieuts. F. H. BOLD, H. DEAS, Charleston; J. B. CASH, Chesnee; B. T. SHARPTON, Clarks Hill; C. H. BLAKE, F. M. ROUTH, W. P. TURNER, Greenwood; F. L. MARTIN, Mullins.

To Fort Sheridan, Ill., base hospital, from Fort Oglethorpe, Capt. J. L. BOLT, Easley.

To San Francisco, Calif., from Camp Sevier, Lieut.-Col. THOMAS E. SCOTT.

South Dakota

To Camp Dodge, Iowa, Lieut. A. S. JACKSON, Lead.

To Fort Oglethorpe for instruction, Lieut. B. C. MURDY, Aberdeen.

Tennessee

To Ann Arbor, Mich., State Psychopathic Hospital, for intensive training, from Washington, Lieut. P. J. TRENTZSCH, Rives.

To Baltimore, Johns Hopkins Hospital, for instruction, from Fort Oglethorpe, Lieut. J. C. BLANKENSHIP, Halls.

To Camp Hancock, Ga., Capt. J. E. JETER, Gleason.

To Camp Sheridan, Ala., Lieut. E. M. CULP, Clifton. On completion *to Camp Shelby, Miss.*, Capt. A. J. READ, Chattanooga.

To Camp Zachary Taylor, Ky., Capt. S. M. GLASGOW, Nashville; Lieut. J. S. BEASLEY, Centreville.

To Fort Benjamin Harrison, base hospital, from Camp Pike, Capt. W. E. HOWELL, Morristown.

To Fort Oglethorpe for instruction, Major J. L. ANDREWS, Lieuts. C. M. CHILTON, H. P. CONLEY, Memphis; M. D. DAVIS, St. Elmo.

To Fort Omaha, Neb.. from Fairfield, Capt. G. E. CAMPBELL, Elizabethton.

To Hoboken, N. J., from Camp Lee, Lieut. C. COLLIER, Memphis; from Camp McClellan, Lieut. R. L. MOTLEY, Jr., Dyersburg; from Camp Sherman, Lieut. J. H. HITE, Nashville.

To Whipple Barracks, Ariz., from New Haven, Capt. L. SHUMACKER, Chattanooga.

The following order has been revoked: *To Fort Ontario,* base hospital, Lieut. O. M. LATEN, Memphis.

Texas

To Ann Arbor, Mich., State Psychopathic Hospital, for intensive training, from Fort Riley, Lieut. R. A. THARP, Austin.

To Baltimore, Johns Hopkins Hospital, for instruction, from Fort Oglethorpe, Lieut. M. H. GLOVER, Wichita Falls.

To Camp Bowie, Texas, base hospital, Capt. C. D. DIXON, San Antonio.

To Camp Crane, Pa., from Fort Oglethorpe, Lieut. H. U. WOOLSEY, Terrell.

To Camp Devens, Mass., as orthopedic surgeon and on completion *to Boston,* Harvard Graduate School of Medicine, for instruction, from Fort Oglethorpe, Lieut. H. CLAY, Dallas.

To Camp Forrest, Ga., from Camp Jackson, Lieut. J. C. MAY, Fort Worth.

To Camp Gordon, Ga., as orthopedic surgeon, and on completion *to Boston,* Harvard Graduate School of Medicine, for instruction, from Fort Oglethorpe, Lieut. H. K. MORRISON, Houston.

To Camp Hancock, Ga., Capt. O. C. BOWMER, Corsicana.

To Camp John Wise, Texas, from Camp Kelly, Capt. T. F. BRYAN, Dublin.

To Camp Joseph E. Johnston, Fla., from Fort Oglethorpe, Capt. J. B. SWENGER, Beaumont.

To Camp MacArthur, Texas, Lieut. J. E. HAMMOND, Munday. As assistant to camp surgeon, from Marfa, Major G. S. MURPHY, Amarillo.

To Camp Pike, Ark., base hospital, Lieut. H. DONALD, Dallas. To examine the command for nervous and mental diseases, Lieut. F. O. CALAWAY. Austin.

To Camp Sheridan, Ala., Lieuts. A. G. BLANTON, Bronte; E. J. IRVINE. Dallas.

To Camp Sherman, Ohio, base hospital, from Fort Oglethorpe, Lieut. F. L. ROBBINS, Houston.

To Camp Travis, Texas, base hospital, Capt. H. H. STARK, El Paso.

To Camp Wheeler, Ga., from Camp Cody, Lieut. J. V. DOZIER, Menard.

To Camp Zachary Taylor, Ky., Capt. H. O. BRANNON, Fort Worth.

To Fort Benjamin Harrison, from Fort Bliss, Capt. W. C. BROWNE, Midlothian.

To Fort Oglethorpe for instruction, Capts. G. W. DAWSON, F. A. PIERCE, Dallas; C. P. COOK, Ennis; E. GRAVES, Gatesville; S. B. HUDSON, Habinal; H. F. BLAILOCK, W. P. CONNELLY, McGregor; A. M. McELHANNON, Sherman; J. E. MANNEY, Waco; Lieuts. C. C. NEVILL, Bonham; N. SNYDER, Brownwood; E. L. HAILEY, Colina; O. H. TALLEY, El Paso; W. S. LORIMER, Hanley; T. D. HOLDER, Holder; W. M. MOORE, Jonesboro; J. A. MOORE, Jourdanton; F. B. SEWALL, Marlin; A. C. ROGERS, Odell; T. S. BARKLEY, Rockdale; W. R. MOORE, Spur; E. W. WRIGHT, Sunset; J. E. KING, Throckmorton; T. A. KING, Vernon; F. J. STANISLAV, Waco; C. G. PRICE, Winden.

To Fort Omaha, Neb., from Fairfield, Lieut. C. B. JONES, Quanah.

To Fort Riley, Lieuts. C. T. STEEN, Damson; J. D. SPEAR, Dayton.

To Governors Island, N. Y., from Camp MacArthur, Major S. NORMAN, Texas City.

To Hoboken, N. J., from Camp Jackson, Lieut. E. B. JONES, Jacksonville; from Millington, Lieut. E. L. SHARP, Willis.

To Marfa, Texas, Capt. M. H. BOWMAN, Fort Bliss.

To New Haven, Conn., from Camp Grant, Capt. J. T. BERNARD, Dallas; from Camp MacArthur, Major I. S. KAHN, San Antonio. Yale Army Laboratory School, for instruction, Capt. H. B. KINGSBURY, Fort Worth.

To Otisville, N. Y., from New Haven, Lieut. J. A. BRADBROOK, Asherton.

To report to the commanding general, Southern Department, Capt. A. A. CALDWELL, Amarillo.

To Rockefeller Institute for instruction and on completion *to his proper station,* from Camp Logan, Capt. W. F. McMANUS, San Antonio.

To Whipple Barracks, Ariz., from Camp MacArthur, Capt. M. F. BLEDSOE, Port Arthur.

To Wichita Falls, Texas, Capt. H. J. ROGAR, Vernon.

Honorably discharged on account of physical disability existing prior to entrance into the service, Capt. W. E. BROWN, Abilene.

The following order has been revoked: *To Camp A. A. Humphreys,* from Eastern Department, Lieut. R. ATKINSON, Pleasanton.

Utah

To Fort McHenry, Md., from Fort Oglethorpe, Lieut. F. A. GOELTZ, Salt Lake City.

To Fort Riley, Capts. A. L. CURTIS, Payson; T. H. WHEELER, Salt Lake City; Lieut. R. M. BRUCKHEIMER, Salt Lake City. Base hospital, F. F. HATCH, Salt Lake City. For instruction, Lieut. J. W. NIXON, Brigham City.

Vermont

To Ann Arbor, Mich., State Psychopathic Hospital, for intensive training, Capt. E. O. CROSSMAN, Burlington.

To Camp Crane, Pa., from Camp Hancock, Lieut. H. H. LAWRENCE, Springfield.

To Camp Jackson, S. C., base hospital, from Camp Joseph E. Johnston, Capt. A. D. FINLAYSON, Burlington.

To Hoboken, N. J., from Camp Devens, Capt. B. D. ADAMS, Burlington.

Virginia

To Camp Greene, N. C., from Camp Sevier, Capt. I. HURST, Parksley.

To Camp Meade, Md., from Fort McHenry, Lieut. J. O. MUNDY, Jr., Raccoon Ford.

To Camp Pike, Ark., as assistant to camp surgeon, Capt. E. C. LEVY, Richmond.

To Camp Sevier, S. C., base hospital, from Fort Oglethorpe, Lieut. J. W. JORDAN, Ashland.

To Fort Oglethorpe for instruction, Lieuts. J. B. LACY, Nathalie; L. N. SMERNOFF, Newport News.

To New Haven, Conn., Lieut. W. E. BROWN, Catawba Sanitarium.

To Otisville, N. Y., from New Haven, Capt. A. G. FRANKLIN, Jr., Richmond.

To Washington, D. C., from Walter Reed General Hospital, Lieut. O. A. RYDER, Cambria.

Washington

To Camp Lewis, Wash., Lieut. R. L. BEADLES, Seattle. Base hospital, Capts. O. TAYLOR, Kent; H. G. LAZELLE, Lieut. S. ROGERS, Seattle; from Camp Meade, Capt. W. D. READ, Tacoma.

To Fort Riley for instruction, Capt. J. W. HEWETSON, Taylor; Lieut. J. F. STEBLE, Olympia.

The following order has been revoked: *To Rochester, Minn.*, Mayo Clinic, for instruction, and on completion *to his proper station,* Capt. J. M. HENDERSON, Seattle.

West Virginia

To Camp Beauregard, La., base hospital, from Fort Oglethorpe, Lieut. J. B. PAYNE, Clarksburg.

To Camp Joseph E. Johnston, Fla., from Fort Oglethorpe, Capt. M. V. GODBEY, Charleston.

To Camp Meade, Md., base hospital, Capt. G. YOST, Huntington.

To Camp Shelby, Miss., base hospital, from Camp Upton, Capt. C. W. HALTERMAN, Weston.

To Fort Myer, Va., Capt. J. B. KIRK, Bluefield.

To Fort Oglethorpe, from Camp Wheeler, Lieut. J. C. FORD, Hansford. For instruction, Lieuts. B. H. SWINT, Charleston; R. W. FISHER, Morgantown; H. M. BANKS, Shepardstown; H. L. CASTO, Spencer.

To Fort Sheridan, Ill., base hospital, from Fort Oglethorpe, Capt. E. E. SHAFER, Huntington.

To Hampton, Va., Lieut. W. B. RICHARDSON, Parkersburg.

To Hoboken, N. J., from Camp Sherman, Lieut. W. E. MASTERS, Wheeling.

To Kingsport, Tenn., from Camp Leach, Lieut. S. W. BULL, Spencer.

Wisconsin

To Camp Crane, Pa., from Camp Custer, Capt. H. S. ROBY, Milwaukee.

To Camp Dodge, Iowa, Capt. W. L. STEPHENSON, Ladysmith.

To Camp MacArthur, Texas, Lieut. W. T. McNAUGHTON, Milwaukee.

To Camp Meade, Md., from Fort McHenry, Lieut. E. R. F. MURPHY, Antigo.

To Camp Wheeler, Ga., from Camp Cody, Capt. J. S. FOAT, Ripon.

To Fort Benjamin Harrison, base hospital, from Fort Oglethorpe, Lieut. J. ANDERSON, Racine.

To Fort Oglethorpe for instruction, Capts. N. ANDREWS, Oshkosh; A. O. SANDERS, Superior.

To Fort Riley for instruction, Capts. W. O. SEEMAN, Eau Claire; D. G. HARRISON, Mason; E. F. BICKEL, Oshkosh; N. A. PETERSON, Soldier's Grove; Lieuts. J. J. MALCOLM, Chetek; W. A. MUNN, Janesville; W. W. COON, Milton Junction; O. T. GUNTHER, Sheboygan; R. F. FITCH, Tomah.

To New Haven, Conn., Lieut. L. F. RUSCHHAUPT, Milwaukee.

To Newport News, Va., from Camp Meade, Lieut. C. C. ROWLEY, Winnebago.

To report to the commanding general, Central Department, Capts. J. C. ELSOM, Madison; L. L. TAYLOR, Waupun.

Wyoming

To Camp Cody, N. M., Lieut. A. P. THOMPSON, Evanston.

To Camp Custer, Mich., base hospital, Capt. C. E. HARRIS, Basin.

To Camp Fremont, Calif., base hospital, Capt. A. H. COOPER, Lander.

To Fort Oglethorpe for instruction, Capt. A. B. TONKIN, Riverton.

To Fort Riley for instruction, Lieut. D. H. DALE, Lusk.

To Wichita Falls, Texas, Call Field, from Camp Dick, Lieut. J. T. McBRIDE, Dayton.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest; such as relate to society activities, new hospitals, education, public health, etc.)

COLORADO

Personal.—Dr. John F. McConnell, Colorado Springs, was elected president and Dr. George B. Gilbert, vice president, and Dr. Harry C. Goodson, secretary, of the Solly Tuberculosis Society, Colorado Springs, August 19.——Dr. Benjamin B. Frankle has been appointed police surgeon of Denver, succeeding Dr. Samuel S. Goldhammer, resigned to enter military service.——Dr. Haskell M. A. Cohn, Denver, sustained fractures of the shoulder and two ribs in a collision between his automobile and another car, 8 miles north of Colorado Springs.——Dr. A. J. Monahan, Pueblo, has been appointed a member of the state board of health.

CONNECTICUT

Laboratory Building for Medical School.—Plans have been prepared for a laboratory building for the Yale Medical School, New Haven. The building is to be of brick and steel construction.

Physician's Bail Forfeited.—Dr. Francisco D'Agostina, New Haven, arrested, August 15, on the charge of improper treatment of his 15-year-old ward, and released on bonds of $5,000, is said to have failed to appear in court and his bonds were forfeited.

Tuberculosis Propaganda.—The state department of health is distributing throughout the state a new pamphlet entitled, "Tuberculosis: Prevention and Treatment," the object of which is to convey concisely the more important facts concerning tuberculosis of the lungs.

Personal.—Dr. David R. Lyman, Wallingford, has resigned as state tuberculosis commissioner and Arthur R. Kimball, president of the Waterbury Anti-Tuberculosis League, has been appointed to succeed him.——Dr. Nathaniel C. Rubinsky, New Haven, was ship surgeon on the U. S. Transport *Covington*, which was sunk at sea, August 5.——Dr. Robert C. White, Willimantic, was operated on for appendicitis at St. Joseph Hospital, Willimantic, recently, and is said to be doing well.

ILLINOIS

Service Flag Dedicated.—St. Joseph's Hospital, Chicago, dedicated a service flag bearing thirty stars, August 13, indicating that thirty nurses of that hospital were now engaged in war work.

Offenders Against Law.—Mrs. W. M. Rybicki, charged by the state board of health with the violation of the medical practice act, pleaded guilty and was fined $50 and costs in each of two counts.——Dr. K. S. Ramashauski, Chicago, charged with practicing medicine without a license, is said to have been found guilty, and fined $50 and costs, August 12.

Contagious Diseases.—The Illinois health record for the week ended August 12 shows ninety cases of diphtheria, twenty-seven of scarlet fever, nineteen of smallpox, three of meningitis and eighteen of infantile paralysis. All cases of infantile paralysis were reported from the northern part of the state, and Chicago has the majority of cases of diphtheria, smallpox and scarlet fever.

Personal.—Major William Fuller, M. C., U. S. Army, who is chief of the surgical service at U. S. Hospital No. 1, Williamsbridge, N. Y., was operated on in St. Luke's Hospital, August 20, and is reported to be convalescing.——Drs. Mary M. S. Johnstone and Loretta K. Maher, Chicago, have been made contract surgeons of the United States Army, and have been appointed on the staff of the emergency dispensary in Washington.——Dr. G. Willard of Chicago was struck by a street car, August 7, and suffered a fracture of the skull.

MARYLAND

Personal.—Dr. Richard T. Hardy, Baltimore, has been made medical superintendent of the Sydenham Hospital, Baltimore, to succeed Dr. Harry G. Johnson, who has resigned to enter the military service.——Dr. and Mrs. Philip S. Evans, Baltimore, have returned to China after a year in the home country.——Dr. William Dew has been appointed supervisor of pasteurization in the health department of Baltimore.

MICHIGAN

Physicians Exchange Dissolves.—Petition has been made to the circuit court by the Physicians and Surgeons Exchange, Detroit, for the dissolution of the organization, as the listed liabilities are said considerably to exceed the assets.

Business Men Help Sanatorium.—On account of the number of physicians of Mount Clemens who have left to enter the military service, Dr. Joseph M. Croman is contemplating closing the institution and remodeling it as an apartment house. As this would leave the city without a hospital, the business men have raised a bonus of $1,000 to keep the institution open for two years.

Personal.—The governor is said to have demanded the resignation of William D. Farley, Battle Creek, as a member of the state board of health. It is charged that Farley, who is engaged in the underaking and furniture business, sold supplies to the state board of health. He denies that he had any intention of violating the law.——Dr. Benjamin T. Phillips, Menominee, is reported to be seriously ill at his home.

MINNESOTA

Personal.—Dr. Lloyd G. Dack has been appointed local surgeon for the Minneapolis, St. Paul and Sault Sainte Marie Railway at Brooten.

Infantile Paralysis.—Several cases of infantile paralysis were reported from Spring Grove with three deaths, and a specialist from Minneapolis has been sent to invesigate the situation.

Trachoma Institutions.—Free dispensaries for the treatment of Indians and others suffering from trachoma are expected to be established throughout the state. The investigation of the institution is in the hands of Surg. John McMullen, U. S. Public Health Service.

NEW JERSEY

Personal.—Watson Martindale, a member of the Johns Hopkins University Hospital Unit and son of Dr. J. Watson Martindale of Camden, is under treatment in a Paris Hospital, having had his right hand shattered by a German shell at the beginning of the great Allied offensive.——Mr. Charles H. Wells, Montclair, began his work as state commissioner of health, August 15.

Medical Board Changes.—Dr. James W. Hughes, Atlantic City, has been appointed a member of the state board of medical examiners to succeed Dr. Edward H. Baldwin, Newark. Dr. John J. Mooney, Jersey City, has been reappointed a member of the board and Dr. Philip Marvel, Atlantic City, has been appointed a member of the board to succeed Dr. Alexander Marcy, Jr., Riverton.

NEW YORK

Use of Saccharin.—Several years ago, the federal government ruled that saccharin was a deleterious product, and could not be used in foods except when intended for medicinal purposes—that is, diabetic foods—in which instance its use should not exceed 0.03 gm. per day. During the recent weeks, the sugar shortage has become more and more acute and the temptation to use saccharin as a sweetening agent has consequently become greater at this time. In a ruling on the adulteration of a beverage which contained 0.01 per cent. saccharin, the Appellate Division of the Supreme Court of New York held that the use of saccharin, if fully disclosed on the label, did not constitute adulteration within the meaning of the Sanitary Code of New York. This judge, however, went further and stated that "since saccharin is not injurious to health, its use may be restricted, but cannot be prohibited in the exercise of police power."

New York City

Nurses' Psychiatric Unit Ready to Sail.—The Nurses' Bureau of the New York County Chapter of the American Red Cross is making a vigorous effort to enlist for war service every graduate nurse in New York City who can be spared from civilian service, and in connection with this campaign the bureau announces that a special psychiatric unit of forty nurses has been assembled and outfitted, and will soon sail for overseas for the purpose of ministering to shell shocked soldiers.

Personal.—Dr. Frank J. Monaghan, Brooklyn, secretary of the department of health, has been appointed deputy health commissioner in charge of the Brooklyn office, succeeding

Dr. B. Frank Knause, who has resigned to enter the military service.——Lucius Brown, director of the Bureau of Food and Drugs of the New York Department of Health, who was suspended, May 28, was unanimously reinstated by the board of health, August 10.——Dr. Justinian A. Hofheimer, while performing an operation at Hill's Sanitarium in this city, August 19, was stricken with heart disease and had to be removed to his home, where, it was stated, he was in a serious condition.

Not Spanish Influenza.—A statement has been given out by Commissioner Copeland in which he says that researches made by experts in the health department show that of the cases of illness taken from steamships arriving in this port supposed to be Spanish influenza, very few showed symptoms of that affection. Eleven patients taken from one vessel were found to be suffering from pneumonia and bronchial trouble. It is believed that owing to the exigencies of submarine warfare, passengers contract heavy colds and later pneumonia as the result of passing through the semiarctic waters of the north, and later are affected with heat prostration and stomach disorders when they come through the gulf stream farther south. Health officers of the port, however, are keeping a strict lookout on incoming steamships whose passengers or crews might develop Spanish influenza.

NORTH CAROLINA

Prosecution for Violation of the State Quarantine Law.—During the month of July the state board of health prosecuted twenty physicians for violating the state quarantine law. Two charges were brought against one physician. One defendant was found not guilty, and convictions were obtained and fines were imposed ranging from $1 to $15. In each case the charge against the physician was failure to comply with the state quarantine law that requires the prompt reporting to the county quarantine officers of infectious or contagious diseases.

Hospitals in Western North Carolina.—Western North Carolina is being recognized by the federal government liberally in the location of the various hospitals recently established. An Army hospital has been established for reconstruction purposes at the Hotel Kenilworth, which was completed last year by private persons. The new U. S. Hospital at Azelea, 4 miles south of Asheville, will soon be able to care for 200 tuberculous soldiers; the U. S. Hospital at Waynesville, N. C., 28 miles away, cares for about 800 soldiers, while the internment camp for Germans at Hot Springs, N. C., 30 miles from Asheville, will shortly be converted into a hospital with accommodations for 2,000 soldiers.

Postgraduate Courses for Health Officers.—The North Carolina State Sanatorium, with the cooperation of the International Health Board, has arranged a special postgraduate course in physical diagnosis for health officers and other physicians. While special stress has been laid on tuberculosis, the course will be of such a general nature as to make it of value to the practitioner. The course will include: history taking; complete physical examination; tuberculin, the von Pirquet test and subcutaneous test and treatment; blood pressure; throat; a unit of tuberculosis for a county health department; assistance to be obtained from the sanatorium and the bureau of tuberculosis; laboratory; radiography and electric therapeutics; county *sanatoriums; pneumothorax;* dairying. Instruction will be given by Drs. Lewis B. McBrayer, Paul P. McCain, Wade H. Sherrill and Miss Mann, all of Sanatorium.

Inspection and Grading of Jails.—The state board of health has recently completed the inspection and grading of one half of the county jails of the state, as provided for in a recent legislative enactment. A tabulation shows that very few of the 100 county jails are maintained regularly according to the standards fixed by the board. Out of a possible 100 points, only two jails scored above 90; nine between 80 and 90; eleven between 80 and 70, while the other twenty-six range rapidly down to the lowest, which is graded at 47. The sanitary requirements of the board are minimal in their exactions, consisting in brief of a physical record of each inmate on entry; separation of races and sexes; segregation of infections, notably tuberculosis and venereal infections; precautions against vermin; ample floor and air space; pure water and bathing facilities; proper clothing and bedding; sanitary disposal of sewage; measures against flies and mosquitoes; and general cleanliness of person and premises. The inspection work will be continued until all counties have been examined and graded.

OREGON

New State Officers.—At the annual meeting of the Oregon State Medical Association held in Seattle, Wash., last month, the following officers were elected: president, Dr. Charles M. Barbee, Portland; vice presidents, Dr. Frank E. Boyden, Pendleton; Louis Buck, Portland, and Benjamin A. Cathey, Condon; secretary, Dr. Andrew J. Browning, Portland; treasurer, Dr. Jesse M. McGavin, Portland; and councilors, Drs. Charles H. Carey, Portland; Joseph A. Pettit, Portland; Francis G. Swedenburg, Ashland; George S. Whiteside, Portland; Robert J. Pilkington, Astoria; Alvin W. Baird, Portland; Mae H. W. Cardwell, Portland; Charles J. Smith, Portland; Paul Rockey, Portland; Roy S. Stearns, Portland, and Roy C. McDaniel, Portland.

PENNSYLVANIA

Philadelphia

To Raise Funds for a Hospital.—With the aid of the woman's auxiliary of the Roosevelt Hospital, to be organized within the next few days, the campaign to raise a fund of $20,000 with which to enlarge the Roosevelt Hospital will be carried into every section of the city and suburbs. Campaign headquarters have been opened at 1341 Chestnut Street and the active work of the campaign will be conducted there. Dr. Franklin Brady, chief of staff, has asked architects to submit plans involving a cost of $200,000 for the new hospital.

RHODE ISLAND

Typhoid in the Pawtuxet Valley.—The state board of health is making a thorough investigation into the reported prevalence of typhoid fever in Pawtuxet Valley. It is believed that the infection was due to a carrier rather than to water pollution.

District Society Meeting.—The Woonsocket District Medical Society, at its annual meeting, reelected Dr. Edward L. Myers, Woonsocket, president, and elected the following new officers: vice presidents, Drs. James A. King and Robert Gates Reed, Woonsocket; secretary, Dr. Edgar F. Hamlin, Slatersville, and treasurer, Dr. Aurelien Constantineau, Woonsocket.

Personal.—Dr. Harry S. Bernton, pathologist to the state board of health, has resigned to become the chief of the bureau of preventable diseases and director of the biologic laboratories of the health department of the District of Columbia.——Dr. Augustine A. Mann, Central Falls, was reelected president of the First Regiment Rhode Island Cavalry Veteran Association at its annual reunion, August 17.

TEXAS

Personal.—Dr. Herbert F. Gammons, Carlsbad, formerly assistant superintendent of the Texas State Tuberculosis Sanatorium, has been appointed superintendent of the Deerwood Sanatorium, Wadena, Minn., and will also attend to the tuberculosis clinics in Crow Wing and Aitkin counties.——Dr. H. Powell Luckett, Bastrop, was stricken with cerebral hemorrhage recently, and has been obliged to resign as a member of the county registration board.——Dr. Azariah W. Parsons, Devine, has been elected president of the Medina County Medical Society.

CANADA

Personal.—Lieut.-Col. John N. Gunn, D.S.O., Toronto, formerly officer commanding the 8th Field Ambulance in France, has been appointed deputy assistant director of medical services at Calgary, Alberta.——Capt. D. E. Staunton Wishart, Toronto, who has completed three years with the R. A. M. C. in the east, has been gazetted to the staff of No. 4 Hospital at Basingstoke, England.——Dr. Francis J. Shepherd, Montreal, late dean of the medical faculty of McGill University, has just completed an investigation into the prevalence of goiter in Alberta, undertaken at the instance of the Canadian Conservation Commission to which body representations had been made that the disease was unduly prevalent in that province.——Dr. H. A. Stewart, Saskatoon, Sask., has been elected a member of the Senate of the University of Saskatchewan, and will represent the College of Physicians and Surgeons of the province.——Lieut.-Col. Andrew Croil, formerly of Saskatoon, Sask., has been appointed to take charge of the surgery in Camp Hill Military Hospital, Halifax, N. S.——Capt. Charles E. Preston, C. A. M. C., was among those wounded during a German bombing raid on No. 1 Canadian Base Hospital.——Lieut. B.

E. Hawke, formerly of Toronto, has been working in a hospital in Epsom, England. He has recently been appointed examiner of a traveling board with headquarters at Tunbridge Wells.——Major A. S. Gorrell, A.D.M.S., Military District No. 12, Canada, is advanced to the rank of lieutenant-colonel and will be special consultant in diseases of the eye, ear, nose and throat.——Lieut.-Col. Joseph Hayes, who went overseas as medical officer of the 85th Nova Scotia Battalion, has been mentioned in dispatches a second time for distinguished and gallant services.——Capt. Frank Hassard, a graduate of the University of Toronto, won the Military Cross in July and is now attached to the field ambulance of the Indian cavalry.

GENERAL

Personal.—Surg. James A. Nydegger, U. S. P. H. S., was placed in supervisory charge of the quarantine functions of the port of Baltimore, August 1. The Baltimore Quarantine Station was recently transferred from municipal to federal control.

Eye and Ear Meeting.—At the annual meeting of the Pacific Coast Oto-Ophthalmological Society held in Salt Lake City, August 12 and 13, under the presidency of Dr. Alexander R. Irvine, Salt Lake City, Dr. Cullen F. Welty, San Francisco, was elected president, and Dr. Aaron S. Green, San Francisco, secretary. San Francisco was selected as the place of meeting for 1919.

Tri-State Officers.—At the annual meeting of the Tri-State District Medical Association, held in Madison, Wis., August 20 to 22, Rockford, Ill., was selected as the place of meeting for next year. The following officers were elected: honorary president, Dr. James W. Guthrie, Dubuque, Iowa; president, Dr. Lawrence H. Prince, Sparta, Wis., and secretary and treasurer, Dr. Domer G. Smith, Freeport, Ill.

Bequests and Donations.—The following bequests and donations have recently been announced:

The City of Milwaukee, $350,000 for the erection of three free medical dispensaries, by the will of Miss Antoinette E. Keenan.

For a hospital for the white race at Winston-Salem, N. C., $12,000, and an additional $12,000 for provision for negroes of the community by the will of R. K. Reynolds, Winston-Salem.

Polyclinic, American Oncologic, Samaritan, Garretson, American, and Babies' hospitals, Philadelphia, each $1,000, and the ambulance fund $3,000, from the receipts of the Philadelphia Indoor Horse Show.

New Physiologic Journal.—Announcement is made of the forthcoming appearance of the *Journal of General Physiology*, which is intended to serve as an organ for publication for papers devoted to the investigation of life processes from the physicochemical point of view. The journal will be issued bimonthly. The first number will appear September 20. The editors are Dr. Jacques Loeb of the Rockefeller Institute for Medical Research, and Prof. W. J. V. Osterhout of Harvard University. The subscription price is $5 a volume and subscriptions should be sent to the *Journal of General Physiology*, Publication Department, the Rockefeller Institute for Medical Research, Sixty-Sixth Street and Avenue A, New York.

National Safety Council.—The seventh annual safety congress of the National Safety Council will convene at the Hotel Statler, St. Louis, September 16, under the presidency of David Van Schaack, and will remain in session four days. The principal addresses will be delivered by Secretary of the Interior Franklin K. Lane, on "Safety as an Asset in Winning the War," and by Charles M. Schwab, director of the emergency fleet corporation on "The Democratization of Industry." The preliminary program of the meeting shows a very wide range of subjects for discussion, dealing with the fundamental principles of the methods of securing success in safety work and in coordinating the resources of the country for the winning of the world war.

Prohibition of Child Labor. — Congressman Edward Keating of Colorado stands sponsor for a new war measure which will directly prohibit the labor of children of less than 14 years of age at any time, and children between the ages 14 and 16 years for more than eight hours a day, and of children of less than 16 years of age in mines and quarries. The bill seeks to maintain standards during the war by direct prohibition under the war power of Congress. The bill was drawn by Thomas I. Parkinson of the Legislative Drafting Research Fund of Columbia University, and has been approved by a joint committee of the National Child Labor Committee and the American Federation of Labor.

Convention of Sanitarians.—A convention of sanitarians of the United States and Canada will be held in Chicago, October 14 to 17, under the auspices of the American Public Health Association. The convention will consider such questions as "Which Public Health Officer Should Stay at Home and Which Should Go to War?" "How Is the Nation Bearing Up Under the War Strain?" "What Are the Special War-Time Health Menaces of the Civil Population and What Are We Going to Do About Them?" and "What Headway Are We Making Against Venereal Diseases?" Papers will also be presented on laboratory, internal hygiene, vital statistics, food and drug, sanitary engineering, sociologic and general health administration subjects. Among those who are expected to be present and speak at the conference are: Surg.-Gen. William C. Gorgas, U. S. Army; Col. Victor C. Vaughan and Major William H. Welch, M. C., U. S. Army; President George H. Vincent of the Rockefeller Foundation; Dr. Charles J. Hastings, president of the American Public Health Association; Asst.-Surg. Allan J. McLaughlin, U. S. Public Health Service; Drs. Ernest S. Bishop, Lee K. Frankel, Frederick L. Hoffman and others. Governors of states and mayors of cities have been requested to send their health officers to this conference. Further information will be furnished by A. W. Hedrich, secretary of the American Public Health Association, 1041 Boylston Street, Boston.

FOREIGN

Deaths in the Profession Abroad.—**E. G. Gereda,** a prominent laryngologist of Madrid, founder and director of the new model mountain sanatorium for pulmonary tuberculosis at Guadarrama, the first climatic sanatorium in Spain, injured in a motorcycle accident, aged about 35.——**T. von Speyr** of Chaux-de-Fonds, Switzerland, a well known ophthalmologist, president of the Swiss Ophthalmologic Society and leader in public health matters in his district. He succumbed to perforation of an unsuspected gastric ulcer, aged about 61.

Death of the President of Italian Red Cross.—The death is reported of the Count della Somaglia, senator and president of the Italian Red Cross since early in 1913, aged 50. His father had been president of the Red Cross from 1886 to his death in 1896, and was also senator of the realm. The son took up the task then, serving on the council and later as vice president and president until his recent death. The extensive work of the Italian Red Cross through the Messina earthquake and other catastrophes and during the war has been finely organized and admirably effectual.

SOUTH AND CENTRAL AMERICA, MEXICO AND WEST INDIES

Lying-In Hospital at Havana.—The *Revista de Medicina y Cirugia* of Havana describes the opening of the new Mutualidad Materna del Vedado, founded and managed by Dr. L. Huguet as a modern maternity. It is the first institution of the kind in Cuba exclusively devoted to parturients.

Index of Cuban Medical Literature.—The Medical Press Association of Cuba voted at its regular meeting in July to publish an index of the medical literature of Cuba. The committee appointed for the purpose consists of Drs. Weber, Ruiz Casabo and Arteaga. The latter is editor in chief of the *Revista de Medicina y Cirugia* of Havana. The financial aid of the scientific societies and periodicals of Cuba is to be solicited to cover the expense of this local "Index Medicus."

CORRECTIONS

Conference of Local Board Examiners.—We are informed by Dr. J. W. Elder that Major W. C. Lyle of Georgia held a conference with the chairmen of advisory boards at Fort Oglethorpe, and that this conference was held earlier than the one held by examiners at Camp Cody as described in THE JOURNAL last week.

Studies in Water Drinking.—In the issue of August 24, page 685, appeared an abstract of Dr. A. C. Ivy's article on "Studies in Water Drinking." The last sentence of this item reads: "It was impossible to demonstrate a fatigue of the gastric glands when stimulated by water or by gastrin for a period of ten to twenty-six minutes." This statement should be "for a period of ten to twenty-six hours."

National Dental Association.—In the issue of August 17, in a "General News" item, under the heading "National Dental Association," it was stated that the exhibit of the United States Army Dental School Section was in charge of Lieut. William E. Henshaw, Lieut. C. R. Hollister and Lieut.-Col. J. H. Snapp. This statement was erroneous, as this exhibit was in charge of Lieut.-Col. J. H. Snapp, Major J. D. Eby, Capt. Benjamin B. Tódd and Major A. J. T. Beatty.

LONDON LETTER

London, July 30, 1918.

Mr. Hoover on the Food Position

Mr. Herbert Hoover, the food administrator of the United States, who is at present in this country for the Inter-Allied Food Conference, made an important statement on the food position at a luncheon given in his honor by the lord mayor. He said that within four months of the outbreak of war they were startled in America by the fact that 10,000,000 people in Belgium and northern France were in danger of immediate starvation. From that moment his sole occupation had been the study of problems and the actual administration involved in the feeding of masses of human beings. In those early days they regarded the Belgian problem as the greatest problem in food that the world had seen. But they little realized that sooner or later the food supplies of 500,000,000 people would be endangered and that the economic disturbances arising would penetrate into every quarter of the globe. The development of this titanic struggle to a point at which practically one third of the man power of the white races would be called out for warfare could have but one result on food production. Furthermore, the naval struggle to cut off or reduce the food supply of ourselves or the enemy had become one of the primary strategies in the war. The enemy had rendered our food problem complex and difficult by the destruction of shipping and the partial isolation of many of the great sources of supply in the southern hemisphere, but he had failed in his objective. America was solving the problem of supplying the Allies by relying on three avenues of exertion: 1. The people and the lands were capable of increasing production. 2. With a higher standard of living, and therefore a larger individual food consumption than any other population in the world, the Americans had a larger possible margin for reduction of consumption without damage to public health. 3. By the enforcement of restriction on export they could direct the total stream of food from the United States directly into Allied hands, to the exclusion of all others, unless those others were prepared to give service to shipping or materials to the Allied cause to repay them for their sacrifice. During the past twelve months they had exported about 10,000,000 tons of food, and, aside from their diminished production during that year, it is to be remembered that the United States, except under the pressure of this war, is not normally a food-exporting country of consequence. The saving of foodstuffs in the United States has been wholly on a voluntary basis. It had been the ambition of the American people during the past year that the restriction in quantity of breadstuffs in Europe should be relieved and the quality of the loaf improved. He believed that a less moderate mixture of other cereals than wheat in the loaf would be possible and thus better bread provided for the entire 220,000,000 people opposed to Germany. This year a reserve must be built up in breadstuff supplies against the ever-present climatic dangers to harvest. The great problem of agricultural substitution was dominated by two critical relative factors, first the time factor and second the expenditure in fodder and therefore land productivity. To increase the beef production would require from three to five years. On the other hand, they could bring an enormous increase in meat and fat production through swine within from nine to twelve months. They could also produce the same food value from swine with one fourth the consumption of fodder crops that they could obtain from cattle. They had therefore urged, and given assurances to their agricultural population, which had led to a wonderful increase in their swine production. He had in his possession the needs of the European Allies for meats. The United States could furnish this whole volume in pork alone. In the next twelve months with less pressure of saving on the people, it could export 18,000,000 tons if it should prove necessary, and to this Canada would add about 3,000,000 tons.

Turning to the position of the enemy, he said that a body of about 100,000 persons, comprising the dominating spirit in Germany, through years of machiavellian industry, had been able to put against the rest of the world the forces of 160,000,000 people, but they had not been able to produce their needed food. They had overrun their borders, they had crushed whole races of people, and they were daily supplementing their own food supplies by extraction of the already short supplies of these helpless people. A periphery of starvation rang about so-called German victory. These conquered people, already hungry, were being slowly and surely starved, and their loss of lives through malnutrition and starvation during the next harvest year would be far larger than all the casualties on the western front. There was no greater illumination of the ill that has been done to civilization through the ambitions of this group of men than the appalling outlook that confronts this helpless mass now under the beneficence of Kultur. America was able to relieve these people only at one point, and that was in Belgium and northern France.

New Rationing Orders for Invalids

The food controller has issued new regulations with regard to rations for invalids. He understands the difficult position in which physicians are sometimes placed when asked to sign certificates for extra rations, but he relies on the profession to help him in safeguarding the national food supplies by giving certificates only when essential. Importunate patients should be told that a physician has no power to grant extra rations, but only to recommend a case for such a grant when he is convinced of its necessity; and that the final responsibility for giving or withholding a grant rests with the Ministry of Food, which has to take into account not only the requirements of the individual, but also the state of the national supplies. Physicians are asked to recommend milk (which is not rationed) rather than extra allowances of meat and butter, whenever this will meet the needs of the patient, as extra rations can be granted only when it is clear that the patient cannot obtain sufficient nourishment from unrationed foods. Extra meat is allowed in certain cases for obtaining raw beef juice, but not for making beef tea. For the latter purpose a commercial meat extract should be used. It has been found that the terms "pancreatic insufficiency" and "celiac disease" are used so loosely that medical certificates bearing these diagnoses alone can no longer be recognized. A brief statement of the patient's symptoms should be supplied as well. Extra rations may be granted for the diseases shown in the accompanying table.

RATIONS THAT MAY BE GRANTED IN CERTAIN DISEASES

Diseases	Maximal Weekly Rations, Including Ordinary Rations		
	Butcher's Meat	Bacon	Butter and Margarin
			Number of times the ordinary ration (which may vary from time to time)
Active tuberculosis, pulmonary or otherwise	2½ lb.	1 lb	Three times
Diabetes and glycosuria	2½ lb.	1 lb	Four times
Exophthalmic goiter	Either 2 lb. and	Ordinary ration and..........	Once
	Or ordinary ration and......	Ordinary ration and..........	Twice
Pernicious anemia	2 lb.	Ordinary ration	Once
Cancer	Either 2 lb. and	Ordinary ration and..........	Twice
	Or ordinary ration and......	Ordinary ration and..........	Three times
Senile dyspepsia	2 lb.	Ordinary ration	Once
Convalescence after severe illness or severe operation	2 lb.	Ordinary ration	Twice
Infantile diarrhea and wasting	In the case of children under 2 years suffering from this complaint, extra meat may be granted not exceeding 2 lb. per week, for a maximum of 4 weeks for the purpose of making raw beef juice.		

When a patient is medically certified as being unable, for some reason specified, to take one or other of butcher's meat, bacon or butter, his rations may be interchanged at the discretion of the committee in the following proportions: One coupon for butcher's meat a week equals one coupon for bacon a week equals one butter-margarin coupon a month. A return to the meat diet will be allowed at any time on surrender of the unused extra fats coupons. Instead of the regulation war flour, a permit to use white flour may be granted in active gastric ulcer, active duodenal ulcer, malignant disease of the stomach (gastric carcinoma), senile dyspepsia, chronic diarrhea and intestinal ulceration. By "active" gastric or duodenal ulcer is meant either that stage of the disease in which the patient is undergoing treatment in bed or the convalescent period immediately following it. The term "senile dyspepsia" is used for that form of flatulent indigestion so often encountered in aged persons in association with chronic bronchitis or cardiac weakness.

Medical Women in the Army

Owing to the shortage of male labor in every occupation, the women have been employed in enormous numbers and have worked exceedingly well both in the auxiliary services of the army and in civil life. Women physicians have also proved exceedingly useful, but some dissatisfaction exists with regard to the position of medical women serving in the army. The government has refused to grant them commissions. Dr. Jane Walker, president of the Medical Women's Federation, has written a letter to the *Times* voicing the growing indignation of medical women from whom, she says, the War Office continues to ask more and more while treating them as inferior to the men who are doing the same work. Women serving abroad receive the same pay as men and the same gratuity, but they receive neither ration nor billeting allowance, and those two allowances come to over $7.50 a week. Women serving at home receive neither the ration allowance nor the $300 gratuity that is paid to the men. They are also refused the privilege, given not only to officers, but also to army sisters and nurses, of traveling on leave with half-fare vouchers, and they pay the income tax as civilians. The ground for refusing the gratuity and the reduced rate of income tax is that the woman is engaged on a monthly contract, while the man joins for a year or until the end of the war. But the woman is given no option. She is not allowed to join for more than a month. Yet, whether she joins for a month or a year she is giving up her home and her private practice. Medical women have now been serving for more than two years in the army without rank, and they are suffering not only financially but also in their professional position. Working without rank among a body of men where the whole discipline depends on badges and rank, they have not the authority necessary for carrying out their duties, such as they have in civil hospitals. Although many of the medical women serving in the army not only have a high professional standing in civil practice, but now have a large experience in military hospitals, they rank below the latest joined subaltern, and are obliged to take their orders from him. When they travel, they travel not as officers, but as "soldiers' wives." In numerous ways, in dealing with their patients, with the orderlies, with German prisoners, and with colored troops, they find that they have not the respect and the prompt obedience to which they are entitled and which rank would give them. It is only fair to add that recently the War Office gave medical women serving abroad the right to wear uniforms, but that right does not touch the grievances. Many medical women say that a uniform without rank means nothing, and that it will only serve to emphasize the position of inferiority in which they are placed.

PARIS LETTER

Paris, July 25, 1918.

Donation from the American Red Cross

In view of the remarkable results obtained by la section de rééducation professionelle des blessés de la guerre (rehabilitation of the maimed soldiers) of the Ecole nationale d'horlogerie at Cluses (département de la Haute-Savoie), the minister of commerce recently gave permission to build a new annex to that institution. The American Red Cross, showing again the interest it takes in our wounded, has agreed to contribute half of the expense of building and equipment of this addition, representing the sum of 200,000 francs. M. Clémentel, minister of commerce and industry, has extended the thanks of the government to the American Red Cross for this most generous gift.

American Sanitary Trains

In less than six months the medical department of the United States Army has established sixteen model sanitary trains which are now running on the French railroads, and are destined for the American army. The sixteenth train was "inaugurated" at Pantin. Seven of these trains are sidetracked in the suburbs of Paris, constituting a reserve for emergencies. More than 640 wounded can be taken care of on one train, which has 360 beds. Each coach for the wounded is provided with a bath room. The train is lighted by electricity and has telephone connection between all the coaches.

Monument for Dr. Magnan

A group of former students and friends and confrères of the late Dr. Magnan (The Journal, Nov. 4, 1916, p. 1382), honorary physician-in-chief of the Asile de Sainte-Anne, have decided to erect a monument to his memory. By reason of present conditions, the executive committee has decided not to take definite action until after the war (*après la victoire*). Subscriptions to this fund will be received by Dr. Marcel Briand, physician-in-chief at Sainte-Anne, president of the executive committee, 67, boulevard des Invalides, Paris, and by M. P. Masson, the publisher, 120, boulevard Saint-Germain, Paris, treasurer.

Honoring the American Red Cross

At a meeting held July 4, the Académie Française bestowed a large gold medal on the American Red Cross in appreciation of its admirable work. The Union des Syndicats médicaux de France also sent the following letter to the American Red Cross: "The Conseil d'Administration de l'Union des Syndicats médicaux de France, after having, in the name of the ten thousand physicians which it represents, written to the president of the American Red Cross in France, in order to express to him its appreciation of all the good which that organization has done, its great generosity and its admirable devotion to our country, sends to the American people and their noble representative the assurance of its profound admiration and of its lively appreciation. It is firmly convinced that the confraternity of the armies of the two Republics, and their indissoluble union, will, in the future, safeguard peace, right, justice and progress." (The original French was given recently in The Journal, page 482.)

American University Union

The American University Union, whose membership consists of numerous French and Americans, recently gave a banquet in honor of M. André Tardieu, high commissioner of the *affaires de guerre franco-américaines*. M. Tardieu delivered a most interesting address. He called attention especially to all that the American universities represent in intellectual vigor and moral force, the important rôle they have played in the development and elevation of the soul of the American people, and all the principles of honor, of solidarity and of disinterestedness which direct their activities.

Sending Children to the Country

On the suggestion of M. Ambroise Rendu, the city council of Paris has decided to create a thousand purses of 400 francs each for the purpose of placing children in the sanatoriums or among the farmers under the conditions established by the Oeuvre Grancher, described in The Journal, July 6, 1918, pp. 1-6.

Distribution of Milk to Children Under Three Years of Age

The city council of Paris, at the request of M. Ambroise Rendu, has decided to establish a credit of 2,400,000 francs to assure the continuance of the gratuitous distribution of milk to children who are less than 3 years of age.

The French Society for Aiding Wounded Soldiers

The Société française de secours aux blessés militaires has held a general meeting. Reports made showed that the society has disbursed 158,692,000 francs between Aug. 2, 1914, and Jan. 1, 1918. The number of hospital days was 35,001,699. The society maintained 162 infirmaries or depot canteens and 164 soldier's clubs—*cercles de soldat*. Thirteen tuberculosis dispensaries or special hospitals were established, four of the hospitals to be permanent after the war. The society has a personnel of 18,846 brevet nurses and about 12,000 auxiliaries. Of this number more than 3,500 are in service in the military hospitals at the front, in Paris or in the provinces, 40 are at Saloniki, 12 at Morocco, 154 have been assigned to accompany evacuation trains and have made 77 trips. Since the declaration of war, 11 nurses have been killed and 20 wounded during bombardments; 30 have succumbed to contagious diseases contracted at the bedside of sick soldiers; 3 have been awarded the Legion of Honor, 212 the Croix de guerre, 892 the médaille des épidémies.

The meeting was closed with a vote of thanks to the American Red Cross, to England, the South American countries, and to French overseas possessions which have come to the assistance of the society in its work.

Reception of American Medical Mission

At the request of M. André Tardieu, high commissioner of the *affaires de guerre franco-américaines*, the Comité d'études sionistes de Paris, over which Baron Rothschild presides, received the medical mission which was sent by the American Zionists and was then passing through Paris on its way to Palestine. This mission is to join another American medical mission organized by the American Red Cross, under the direction of Dr. Finley, which has already reached Jerusalem. In the course of this reception of the zionist mission, addresses were made by M. Tardieu, Dr. Louis Mourier, under-secretary of State of the Service de Santé militaire, and by M. Sylvain Lévi, professor in the Collège de France, who has returned from Palestine, where he had been in charge of a mission.

In Memory of Drs. Pozzi and Bonnaire

The superior council of the Assistance publique has decided to name a ward in the Broca hospital in honor of Professor Pozzi, and a ward in the Maternité in honor of Dr. Bonnaire.

Meatless Days Abolished

The régime of three meatless days a week which was instituted last April has been abolished. In a report made to the president of the Republic by M. Victor Boret, minister of agriculture and food commissioner, it is shown that the shortage of cattle no longer exists. The restrictions previously imposed resulted in a saving in meat consumption of about 25 per cent. The animals have begun to come in from the pastures, where the continued drouth has made it impossible to keep them as long as it was hoped would be possible. The supply of frozen meat has been replenished, thanks to large imports, and the military commissary department has been able to cut down the number of cattle demanded of the producers. Lastly, the high prices have been combated sucessfully by a series of measures which are beginning to show their full effect. It should be stated that the shortage of fruits and legumes, due to atmospheric conditions, makes it impossible to put these replacement foods or substitutes for meat at the disposal of the consumer in sufficient quantity to maintain the restrictions in the consumption of butcher's meat for this time of the year.

The saving of meat during the two months that the meatless regulation was in force amounted to 28,500,000 kg., this result being obtained only by the increase in imports of frozen meats and conserved meats.

Course in English for Soldiers

A circular issued by the minister of war to the commanding generals orders the institution of a free and optional course in English in every army post or garrison.

M. Mesureur and the Hospital Physicians

As stated in a previous letter, M. Mesureur, director of the general administration of the Assistance publique of Paris, addressed a circular to the directors of the hospitals (Paris Letter, June 27, 1918). This circular has provoked a lively protest from the medical corps, hence M. Mesureur sent a letter to the Société des médecins des hôpitaux in which he expressed his regrets at having unintentionally provoked these protests by a badly worded phrase. He rendered justice to the devotion of which the hospital physicians have given and are still giving so many proofs.

Franco-American Scientific Society

There has been organized at Dijon a scientific society or *cercle* for the purpose of amalgamating Franco-American interests in this special territory. The presidents are Major Carmon of the United States Army, and Professor Bataillon, dean of the Faculty of Science. Among those present at the first meeting were American military medical officers, the médecin chef de la Place, the members of the Corps de santé français, the professors of the faculty of science and of the Ecole de médecine et de pharmacie de Dijon.

Marriages

Lieut. John Jacob Fossler, M. R. C., U. S. Army, Millard, Neb., on duty at Fort Riley, Kan., to Mrs. Eva Brewington of Omaha, at Lincoln, Neb., July 20.

Thomas Madison Taylor, New York City, to Mrs. Wallace Moore Bartlett of Lawrenceburg, Ky., August 14.

Rachel Watkins, Chicago, to Mr. Charles A. Long of Holdrege, Neb., August 8.

Deaths

Walter Kempster, Milwaukee; Long Island College Hospital, Brooklyn, 1864; aged 77; a veteran of the Civil War, in which he served first in the line and for the last year as Acting Assistant Surgeon, U. S. Army; assistant superintendent of the New York State Asylum for Idiots, in 1866-1867; assistant physician to the New York Hospital for the Insane, Utica, from 1867-1873; superintendent of the Northern Hospital for the Insane, Oshkosh, Wis., from 1873-1884; assistant editor of the *American Journal of Insanity* for ten years; health commissioner of Milwaukee from 1894-1898; professor of mental diseases in the Wisconsin College of Physicians and Surgeons; author of many monographs; nationally prominent as a specialist in the treatment of insanity; died at his home, August 22.

John Howard Landis, Cincinnati; Medical College of Ohio, Cincinnati, 1889; aged 57; a Fellow of the American Medical Association; professor of pathology in the Laura Memorial Medical College, Cincinnati, from 1892-1895; a member of the staff of St. Mary's Hospital since 1907; professor of hygiene and public health in the University of Cincinnati, since 1908; a member of the Cincinnati Board of Health, since 1909, and health officer of Cincinnati since 1910; an authority on public and municipal health problems of more than national repute; died at his home in Cincinnati, August 23.

Major David Everett Wheeler, M. R. C., U. S. Army, Buffalo; College of Physicians and Surgeons in the city of New York, 1898; aged 46; at one time a Fellow of the American Medical Association; a member of the Medical Society of the State of New York, who went to Europe during the first year of the war as a Red Cross worker, enlisted in the Foreign Legion in February, 1915, and had served as regimental surgeon in Lorraine, Cantigny, and Chateau Thierry and been awarded the Croix de guerre for bravery; was killed, August 13, while caring for the wounded on the field.

Major William Roy Ream, M. C., U. S. Army, San Diego, Calif.; Sioux City, Iowa, College of Medicine, 1902; aged 41; formerly of Walthill, Neb.; a Fellow of the American Medical Association; flight surgeon of the British-American flying circus, which started, August 24, from Indianapolis, to St. Louis, was killed by the fall of an aeroplane near Effingham, Ill., August 24.

Lieut. Sidney Lehman Spiegleberg, M. R. C., U. S. Army, New York City; College of Physicians and Surgeons in the city of New York, 1906; aged 37; a Fellow of the American Medical Association and a Surgeon on duty with the American Expeditionary Forces in France; died at Chateau Thierry, France, July 15, from heart disease.

Andrew Jefferson Osborne, Lawrenceville, Va.; Medical College of Virginia, 1899; aged 49; at one time a Fellow of the American Medical Association; a member of the Medical Society of Virginia; died in a hospital in Lawrenceville, August 9, as the result of wounds sustained in a gun-fight with one of his tenants a few hours before.

William A. Dietrich, Chattanooga, Tenn.; University of Maryland, Baltimore, 1879; aged 60; at one time a Fellow of the American Medical Association; a member of the Tennessee State Medical Association; a specialist on diseases of the eye, ear, nose and throat; died at the home of his sister, in St. Joseph, Mich., about August 13.

Lieut. William Joline Martin, M. R. C., U. S. Army, Wilkinsburg, Pa.; Hahnemann Medical College, Philadelphia, 1899; aged 40; on duty with the British Forces at Queen Mary's Military Hospital, Whalley, Lancashire, England, died in American Red Cross Hospital No. 4, Liverpool, England, July 28, from pneumonia.

Daniel C. Peters, Kokomo, Ind.; Kentucky School of Medicine, Louisville, 1891; aged 58; at one time a Fellow of the American Medical Association; a member of the Indiana State Medical Association; until eighteen months ago a practitioner of Greentown, Ind.; died at his home, July 4, from cerebral hemorrhage.

John Niven Darrough, Kansas City, Mo.; Kansas City Hahnemann College, 1911; aged 31; a Fellow of the American Medical Association; who was discharged from the Medical Reserve Corps recently on account of pulmonary tuberculosis; died at the home of his father in Kansas City, August 9.

Marion Madison Norton, Lake Village, Ark.; Chattanooga Medical College, 1898; aged 45; a Fellow of the American

Medical Association, and in 1913, president of Chicot County Medical Society; proprietor of a private sanatorium in Lake Village; died at his home, August 9, from cerebral hemorrhage.

Guy Jacob Kent, West Liberty, Ohio; Eclectic Medical Institute, Cincinnati, 1902; aged 40; a member of the Ohio State Medical Association and secretary of the Logan County Medical Society; died at his home, August 11, from general peritonitis, four days after a surgical operation.

Ira E. Brown, Los Angeles; University of Southern California, Los Angeles, 1904; aged 43; at one time a Fellow of the American Medical Association, also a druggist; died at his home, August 13, from the effects of poison self-administered, it is believed, with suicidal intent.

Joseph B. Colcord, Port Allegany, Pa.; College of Physicians and Surgeons, Baltimore, 1885; aged 56; a Fellow of the American Medical Association; postmaster of Port Allegany for eight years; died in a hospital in Buffalo, August 7, after a surgical operation.

Frank Harper Ross, Brooklyn; Starling Medical College, Columbus, Ohio, 1879, Bellevue Medical College, 1880; aged 62; a member of the Medical Society of the State of New York; died at his home, August 10, from tuberculosis.

Marion Eugene Martin, Attica, N. Y.; Buffalo, N. Y., University, 1892; aged 54; a Fellow of the American Medical Association; for several years coroner of Wyoming County; died at his home, August 14, from heart disease.

Charles W. Cook, New York City; Hahnemann Medical College, Chicago, 1875; aged 69; for several years general freight agent of the Santa Fe system; died suddenly in Grand Rapids, Mich., from heart disease.

William John Broome, Los Angeles; University of Toronto, 1907; aged 34; a Fellow of the American Medical Association and a specialist on tuberculosis; died at his home, July 23, from pulmonary hemorrhage.

William M. Jarvis, Kansas City, Mo.; Washington University, St. Louis, 1884; aged 69; at one time a member of the Missouri State Medical Association; died in a sanatorium in Fulton, Mo., recently.

Marsden Aubrey H. Cleckley, Augusta, Ga.; Hahnemann Medical College, Philadelphia, 1856; aged 86; examining surgeon for the Augusta district during the Civil War; died at his home, August 4.

John D. Clardy, Hopkinsville, Ky.; University of Pennsylvania, Philadelphia, 1851; aged 90; a member of Congress in 1894; died at his home near Hopkinsville, recently.

Arthur M. Greenfield, Westfield, Pa.; Baltimore Medical College, 1892; aged 60; also a druggist, died at his home, July 27, from acute dilatation of the heart.

John Massman, Chicago, Rush Medical College, 1867; aged 79; a veteran of the Civil War; died at his home, August 12, from carcinoma of the stomach.

Patrick James Callaghan, Waterbury, Conn.; University of Alabama, Mobile, 1892; aged 58; died at the home of his sister in Bridgeport, Conn., August 8.

Edward Tufts Williams, Boston; Harvard Medical School, 1868; aged 74; a member of the Massachusetts Medical Society; died at his home, August 5.

Max Frederick Albu, Hartford, Conn. (license, Connecticut, 1893); aged 70; a practitioner for forty-five years; died in St. Francis Hospital, Hartford, July 21.

David F. Banks, Nashville, Tenn.; University of Nashville, Tenn., 1880; aged 64; died at his home in North Nashville, August 6, from heart disease.

Mary Anna Allen Howell, Camden, N. J.; Woman's Medical College of Pennsylvania, Philadelphia, 1891; aged 71; died at her home, August 9.

William M. Helm, Columbus (Ohio) Eclectic Medical Institute, Cincinnati, 1871; aged 71; died at his home, August 7, from intestinal obstruction.

Sumner Hamilton Boynton, Los Angeles; Homeopathic Medical College of Philadelphia, 1866; aged 72; died at his home, August 2.

Richard C. Perkins, Lynnhaven, Va.; Medical College of Virginia, Richmond, 1860; aged 95; died at his home, July 13.

James D. Southward, Carey, Ohio; Eclectic Medical Institute, Cincinnati, 1890; aged 57; died at his home, August 6.

Henry Day, Newark, Ohio; University of Maryland, Baltimore, 1868; aged 79; died at his home, July 30.

Claude Evans King, Mayesville, S. C.; Baltimore University, 1893; aged 46; died at his home, July 17.

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

TWO MAIL-ORDER FRAUDS

Gallstone Remedy Company.—One L. E. Bowers conducted a fraudulent medical mail-order business from Chicago under the name of the "Gallstone Remedy Company" selling a preparation called "Gall-Tone." In December, 1917, Bowers was called on to show cause why a fraud order should not be issued against him and his business. A Chicago attorney first represented Bowers but afterward withdrew, whereupon one W. H. Landvoigt of Washington acted as Bowers' counsel. It was finally agreed that if Bowers would file an affidavit to the effect that his "gallstone cure" scheme had been discontinued and would not be resumed and would also file an order with the Chicago postmaster directing him to treat as "Refused" all mail matter addressed to the Gallstone Remedy Company or to "L. E. Bowers, Manager," that the solicitor for the Post-Office Department would be disposed to withhold a recommendation for the issuance of a fraud order. Bowers' counsel finally declared that Bowers would be willing to file such an affidavit and order but asked that the name "L. E. Bowers, Manager," be omitted from the order as Bowers was engaged in other enterprises and the inclusion of his individual name would work a hardship. Mr. Landvoigt assured the Post-Office Department that Bowers would absolutely discontinue the use of the mails in the conduct of the so-called gallstone business if permitted to receive mail under the name "L. E. Bowers, Manager." The Post-Office Department consented to the arrangement and an affidavit was executed and filed by Bowers to the effect demanded by the department. The whole case, however, was reopened when it was found that Bowers totally disregarded and violated his stipulation by mailing to former victims a communication reading as follows:

> IMPORTANT NOTICE
>
> To My Dear Friend & Patron:—As all Post Office or Mail Order sales of the wonderful remedy—GALL-TONE, have been discontinued, for the present, at least, I will have to notify you that all packages are now sent by Express. I will also have to ask you very kindly to send all future orders and remittances to me personally, either by Express Money Order or Bank Draft. Kindly use the enclosed envelope or one addressed like it.
>
> This is the only way in which I can serve you, for the present, as the sale of GALL-TONE through the mails has been discontinued.
>
> Will you also kindly notify your friends in order to avoid any misunderstanding or disappointing anyone, or depriving anyone of the help which this superior remedy affords.
>
> With kindest regards and good wishes, I remain yours truly,
>
> L. E. Bowers,
> 219 S. Dearborn St., Chicago, Ill.
>
> P. S. Prices of GALL-TONE by Express f. o. b. until further notice are —One Pkg. $5.00. 2 Pkgs. $8.50. 4 Pkgs. $15.00. 8 Pkgs. $25.00. Mention your nearest express office.
>
> It will be well for you to order a supply NOW to cover future needs as it may become more difficult or even impossible to serve you at all, later on. We have only the present, the future is not ours. I will do the best I can but difficulties may become entirely unsurmountable. So be safe and supply yourself liberally NOW while yet you may surely do so.
>
> L. E. Bowers.

Following this, Judge Lamar, solicitor for the Post-Office Department, submitted the facts regarding the case to the Postmaster-General and recommended the issuance of a fraud order. Judge Lamar, in his memorandum, pointed out that Bowers "is not a physician and has no medical education or training." The memorandum continues:

"In spite of his ignorance of the effect of drugs in the treatment of disease he leads persons to believe that he is qualified to treat ailments of the most serious nature and does not hesitate to determine the treatment in all cases where the sufferer communicates his troubles, and prescribes the same remedy in all cases guaranteeing that a cure will follow its use. The alleged remedy he exploits is known as 'Gall-Tone,' a preparation he obtains in large quantities from manufacturing chemists."

Judge Lamar then quotes extensively from Bowers' advertising and shows the absurdity and fraudulence of the claims made. Then:

> "Through his entire literature Bowers very indelicately seeks to impress on those who patronize him his absolute honesty, his fair dealing, and his good faith and trustworthiness; yet after having had pointed out to him the viciousness of this scheme, and after having solemnly agreed to abandon it, the ink was scarcely dry on the affidavit filed by him with this office evidencing that purpose before he betrayed his honor by breaking his pledge and continuing the operation of the scheme in his own name."

A fraud order against the company was issued July 27, 1918.

New Life Remedy Company.—Joseph H. Pilson conducted a mail-order business under such names as "New Life Remedy Company," "Mail-Order Supply Company," "Vital Fire Remedy Company" and "M. J. Moore, Secretary." These concerns were conducted from 1416 Broadway and 149 W. 35th St., New York City, and 273 Washington St., Jersey City, N. J. In November, 1917, Pilson was called on to show cause why a fraud order should not be issued against his businesses. In January, 1918, a written answer signed by Douglas D. T. Story, attorney for Pilson, was made to the charges, but neither Pilson nor his attorney appeared at the hearing. With the answer were submitted six testimonial tters, three addressed to the "New Life Remedy Company" three to the "Vital Fire Remedy Company" together ith copies of the booklets used in the conduct of the business and an affidavit giving the formula for one of the preparations sold in furtherance of the scheme, also Lilly's Catalogue, 1916-17, containing similar formulas. Judge Lamar, solicitor of the Post Office Department, in recommending the issuance of a fraud order, gave the facts in the case, in part, as follows:

> "The business done by Pilson under the above names consists of the sale of a certain mixture of drugs represented to restore lost manhood, and the sale of another mixture of drugs which he represents in effect will cause abortion in pregnant women. Relying on these representations numbers of men and women make remittances to him in payment for these so-called remedies. Pilson is not a physician and is not capable of diagnosing and treating the diseases and conditions which he claims his treatment will cure. The medicine furnished by him to persons who make remittances is compounded by manufacturing chemists and sold to him in large quantities. The business has been conducted by respondent for a number of years under these various names, with slight modifications of the representations employed but without material change in substance or effect. In his alleged cure for lost manhood the same mixture of drugs has been used throughout, whether called 'Vital Fire Pills' or 'New Force Tablets.'"

It was shown that Pilson in selling his "Vital Fire" and "New Force Tablets" did not hesitate to furnish his remedies to men suffering from nervous debility or loss of sexual power regardless of the cause thereof or the condition of the patient and regardless also of the age of the person. The memorandum pointed out that the falsity of Pilson's representations were not only shown by the evidence but were clearly apparent. It emphasized further the fact that the condition known as "lost manhood" may arise from many causes any of which may require different treatment. Pilson's treatment did not vary and, no matter what might be the cause of the disease or the condition of the patient, the same stock preparation was used indiscriminately under the positive assurance that it would cure.

The preparation sold by Pilson under the virtual representation that it would cause abortion in pregnant women was known as "Compound Pills of Tansy." Pilson, in his answer to the government's charges, declared that he never represented that his preparation would cause abortion, but the government had in its possession letters following a test correspondence showing that Pilson was willing to furnish, for a consideration, pills for the purpose of causing abortion. Judge Lamar called attention to the further fact that in March, 1915, Pilson was convicted and sentenced to a term of six months in the Blackwell's Island penitentiary on an indictment charging him with the fraudulent use of the mails. An appeal was taken and nearly three years afterward (February, 1918) the judgment of the lower courts was affirmed and the conviction sustained. Pilson's scheme was declared to be one for obtaining money through the mails by means of false and fraudulent pretenses, representations and promises. A fraud order was issued, March 29, 1918.

Correspondence

REJECTIONS OF REGISTRANTS AT CAMP FOR PHYSICAL CAUSES

To the Editor:—The rejections from camp have certainly become an exceedingly important matter.

Within the past few weeks I have read carefully the articles in The Journal entitled "Physical Examinations Under the Selective Service: A Meeting of the Section on Miscellaneous Topics, Held in the Studebaker Theater, Chicago, Thursday, June 13," published, in part, July 6, and concluded, July 13, 1918. Similar meetings were held in New York.

There were evidences of lack of respect on the part of one examiner for the opinions of another. Notably on page 28, first column, Dr. James B. Herrick of the District Board of Chicago is quoted as having said:

> Now the Army physician's examination is final and authoritative as it should be. But the reason the taunt of the returned man cuts when he hints or plainly says to the board physician that he, the board physician, evidently did not understand his business, is that sometimes the Army examination has been made by a physician who in civilian life was known as comparatively young, inexperienced, and in every way outclassed by the board doctor who, perhaps, was his teacher or medical adviser, and whose ability to recognize tuberculosis, heart disease, hernia or flatfoot is surely equal to that of the Army man.

Since these meetings were held the situation has grown worse instead of better, and in some cantonments to which recruits have been sent from New York City, rejections have risen in some instances to approximately 25 per cent. At least one camp surgeon, who seems to have focused on obesity, rejecting an unusual number of men, has put himself on record in strong criticism of the preliminary work of the examining physicians connected with Local and Medical Advisory Boards, going so far as to express the opinion that if the draft board physicians had done their duty and selected men in accordance with instructions as per Form 75, his rejections would have been a small fraction of 1 per cent. Probably on more deliberate consideration he will realize that so close an approximation to perfection is too much to demand or expect in medical examinations, where standards are not always exact, and where, after all, something is left to individual judgment under the regulations. This has been particularly true of obesity, as will be seen later.

Helpful suggestions have been invited, and I wish to offer this small contribution to the time and thought which are being devoted to the problem:

First: One cannot help feeling that each class of examiners should be charitable and should cultivate a very kindly disposition toward the others. Our common and supreme purpose is to win the war.

Second: Something probably ought to be done to improve the board examinations. In regard to obesity, for example, probably some maximum weight for height should be tabulated as a guide similar to the minimum weight now in use. It will be recalled that the net minimum was not promulgated until after we had begun our work in August, 1917. I confess that I have always looked on the standard weights for height given in the table as the correct and desirable or normal weights, not in any sense as top weights, until I observed in the new regulations the expression "(*a*) Those who fall within the accepted standards (A) or minimum requirements (B)," etc. This is immediately offset by "(*b*) Those whose weight is greater than the standards indicated for the height

(A) provided the overweight is not so excessive as to interfere with military training" (Form 75). And, by the way, medical advisory experts probably should not try quite so hard by means of brilliant illumination, particularly clean cards, etc., to make the registrant read the second line instead of the top letter. It costs the government a lot of money in round-trip transportation.

Third: In regard to the examinations at camp, I wish to suggest an experiment which should not be impracticable if handled with diplomacy. It would be illuminating, it seems to me, if a certain number of recruits could be independently examined at camp by three camp surgeons, or groups of surgeons, whose opinions should be separately recorded and kept secret from one another and from the recruit until each has completed his work and recorded the result, including his recommendation. Forty recruits would give easy percentages and could be examined by one surgeon easily in one day. When there is a group of examiners a hundred recruits, taken just as they come, would answer still better. They could be reexamined by the other surgeons the same day or on successive days. Rejections could be based on the results of the three examinations, passed on by a qualified board or judge. After sufficient trials such a scheme might become part of the regulations.

An occasional exchange of camp surgeons, so that the three examinations might be made by men regularly attached to two other camps in addition to the examiner connected with the local cantonment, would add interest to the plan and its results.

The present method of selection at camp by means of examining units, comprising approximately ten members, each examining in his own specialty, with a second examination by another similar unit when a question arises, is of course highly satisfactory if there is no flaw in the efficiency of the personnel. My suggestion would furnish a means of control on the latter. Three independent examinations of men as they arrive at camp would tend to keep every examiner up to his work in the knowledge that his results will be checked up in comparison with the others. The opinion of a man of strong personality, when known, is prone to influence his successor. The third examination eliminates the possibility of an even division of opinion.

I really believe that some such modification of the present procedure would work out advantageously. When Local, Medical Advisory, and District Boards have worked many hours in some cases to classify and induct a soldier, it seems to be putting too much responsibility on one man at camp, to leave the final decision practically entirely to him. And this remark applies with special force where the recruit has been detected in malingering and his medical examination papers bear a statement to this effect.

The claims of the registrant deserve due consideration. Errors on the part of boards and medical examiners are possible in the highly complex work of the draft. The foregoing suggestions are modestly offered in the hope that they may be of interest and possibly of some value for the good of the service.

J. MILTON MABBOTT, M.D., New York.

"RECONSTRUCTION AND REHABILITATION OF THE TUBERCULOUS SOLDIER"

To the Editor:—Dr. Banks' letter (THE JOURNAL, Aug. 24, 1918, p. 681) criticizing my paper entitled "The Reconstruction and Rehabilitation of the Tuberculous Soldier" requires some comment. It was not the intention of the writer to belittle in any way the valuable work being done by the Bureau of War Risk Insurance. It is true that discharged tuberculous soldiers are being looked after medically by the Bureau of War Risk Insurance, but my not calling attention to this fact was no greater an oversight than my failure to mention the American Red Cross, National Association for the Study and Prevention of Tuberculosis, the National Home for Disabled Volunteer Soldiers, and the Soldiers' Home, Washington, D. C., which are all doing equally commendable work in this line. However, from Dr. Banks' own statement it would appear that the activities of the Bureau of War Risk Insurance must be largely confined to financial matters, for he himself says that patients are treated in hospitals belonging to the Public Health Service and civilian sanatoriums, while the training proper is in the hands of the Board of Vocational Education. What is left for the Bureau of War risks but to pay the bills for such service, and to provide the compensation to which the patients are entitled under the law? It would not appear that there are at present any adequate accommodations for the large number of tuberculous patients now cared for by the Army if they were at once discharged as Dr. Banks desires. Fort Stanton is filled already to overflowing, and the capacity of the combined sanatoriums of the country, deducting the beds needed for civilian patients (and some of the sanatoriums have waiting lists) would not be sufficient to receive the cases of tuberculosis now under treatment in Army hospitals.

The word "reconstructed," perhaps used a little too freely in my paper, probably led to misapprehension. The Surgeon-General expects to hold tuberculous soldiers only until they are cured or as nearly cured as can be expected, and then turn them over to the Bureau of War Risk Insurance and the federal Board of Vocational Education. The training while in the service is more to give employment and avoid mental depression than to teach completely some useful trade.

If Dr. Banks had been better posted concerning the policies of the Surgeon-General and what is being done and has been done for tuberculous soldiers in the Army, he would have been saved considerable anxiety, and his remarks would have been more temperate. The purpose of transferring cases diagnosed as tuberculosis to Army tuberculosis hospitals is threefold: (1) To minimize mistakes in diagnosis; (2) to save men for the service, as a certain percentage of these patients will be returned to duty, and (3) to help the patient arrest his disease, and in so doing teach him how to take care of himself and the necessary precautions to prevent spread of infection. After this is accomplished, the diagnosis established and it is apparent that the patient will never return to duty, although there may be no absolute authority for retaining him in the military service, every endeavor will be made to have him voluntarily remain under treatment as long as such treatment is necessary. This is not militarism, but a conscientious effort for the good of the patient and the public as well, which should have the hearty support of the bureau which Dr. Banks represents.

E. H. BRUNS, M.D., Washington, D. C.
Lieutenant-Colonel, Medical Corps, U. S. Army.

KNOWLEDGE OF THE COMMUNICATION OF DISEASES BY MOSQUITO BITES

To the Editor:—About forty years before Manson suspected, and Ross proved, that malaria was conveyed by a suctorial insect, the information that the mosquito was capable of doing such a thing was imparted by barbarians to a civilized man, and by him it was scornfully published, and perhaps read by others in the same spirit. Witness this footnote to the first chapter of "First Footsteps in East Africa," written by Richard F. Burton in 1856:

> The mosquito bites bring on, according[1] to the same authority, deadly fevers: the superstition probably arises from the fact that mosquitoes and fevers become formidable about the same time.

The "authority" was "the people" at Zayla, in Somaliland.

LEO NEWMARK, M.D., San Francisco.

Acute Suprarenal Insufficiency in Infectious Diseases.—At a recent meeting of the Medico-Surgical Society of Greece, A. Portocalis reported the death of four soldiers with apparently pernicious relapsing fever or malaria with symptoms of acute suprarenal insufficiency of the choleriform and algid type. In each he found the suprarenals the seat of old tuberculous lesions. Evidently under the influence of the intercurrent disease these old lesions had flared up into an acute and fatal phase. This latent Addison's disease can thus be transformed into a pernicious form by intercurrent erysipelas, typhoid or relapsing fever and malaria.

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10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 10 candidates examined, 8 passed, and 2, *including* 1 drugless healer, failed. The following colleges were represented:

College	Year Grad.	No. Licensed
PASSED		
Arkansas Industrial University	(1884)	1
College of Physicians and Surgeons, Los Angeles	(1908)	1
University of California	(1912)	1
University of Georgia	(1904)	1
Rush Medical College	(1916)	1
University of Louisville	(1915)	1
Baltimore Medical College	(1913)	1
University of Minnesota	(1906)	1
FAILED		
Chicago College of Medicine and Surgery	(1917)	1

Book Notices

Studies in the Anatomy and Surgery of the Nose and Ear. By Adam E. Smith, M.D. Cloth. Price, $4. Pp. 157, with 45 illustrations. New York: Paul B. Hoeber, 1918.

The understanding and successful treatment of diseases of the anatomically complex regions of the nose and ear are more than all else dependent on a close and clear understanding of the anatomy of these regions. The author of this work has made himself a careful and independent student of this necessary anatomy. His subject matter is practical regional anatomy, and his point of view is treatment, especially of local infections, with emphasis placed on surgical treatment. The anatomy of the nose is presented in a series of thirty-one full page octavo pen drawings from actual anatomic dissections, arranged largely to illustrate the practical problems of treatment. These drawings—and this is from a standpoint of general comparison well worth mentioning—are large enough, so well drawn and so clearly notated as to be really valuable. The anatomy of the ear is presented in thirteen similar clear and useful drawings. The text is in part simply descriptive of the anatomy presented in the illustrations, and in part made up of terse and direct statements of practical suggestions, facts and aids to treatment, presented from the author's point of view. These suggestions are sometimes new and valuable; others may be open to criticism; all are stimulating. The so-called "postural treatment" of otitis media is, for example, well worth careful consideration. The volume is a useful adjunct to the more complete works, whether to the experienced specialist or to the more general student of these difficult anatomic regions.

Postgraduate Medicine. Prevention and Treatment of Disease. By Augustus Caillé, M.D., F.A C.P., Consultant to Department of Pediatrics, New York Post-Graduate Medical School and Hospital. Cloth. Price, $6.50 net. Pp. 1023, with 178 illustrations. New York: D. Appleton & Co., 1918.

In this book the author tries to present the treatment of almost all of the "so-called internal derangements." He includes not only the conditions that are strictly in the domain of the internist, but also diseases of women, gonorrhea and its complications in men, dermatology and dental disturbances. There are chapters on bedside and office technic, on minor ailments, and on the emergencies of general practice. The scope of the book is so wide that to do justice to the innumerable subjects mentioned would require a work much larger; but in a volume the size of this, much that is of value could be mentioned if proper balance were maintained. One of the defects is that too much stress is laid on subjects which, strictly speaking, should find little space in a work intended as a therapeutic guide. The author has succeeded in presenting a compilation of facts, in catalogue style, consisting of quotations from various authors and board of health bulletins, and numerous facts gleaned from a vast experience, but he has failed in convincing the reader as to what is the proper course to follow in the treatment of many of the conditions he describes.

The physician of the present time who aims to be scientific should refrain from recommending the use of proprietary medicines of doubtful value, or drugs, the place of which can be taken by official or well-established preparations. The author mentions Angostura Bitters, Lactobacilline, Papoid, Iron Tropon, Iodotropon, Peptomangan and Horsford's Acid Phosphate as of value in various conditions. Surely, these recommendations were not necessary. There are innumerable shotgun prescriptions recommended throughout the book. More than a page is devoted to the Salisbury diet as of value in gout, diabetes, arteriosclerosis, "rheumatism," epilepsy and dyspepsia.

Under gastro-intestinal diseases, the author speaks of combined hydrochloric acid as an intestinal antiseptic. This is certainly not in accord with the known facts. He refers to hyperchlorhydria as the irritative stage of chronic gastritis, and speaks of chronic indigestion with excessive pains after eating as a disease entity, rather than as a syndrome. These cases are now recognized as either gastric or duodenal ulcer, or reflex disturbances from some other part of the abdomen, as the gallbladder and the appendix, and should be treated as such after the diagnosis is made, rather than relieved by morphin and cocain, as he recommends. The reference to "weak and strong stomachs," and "congestion of the liver being induced by gastric or intestinal indigestion, or constipation," harks back to the time of the backwoods physician. The use of digitalis in auricular fibrillation, in which it is of the greatest value, is given scant mention. The reviewer does not agree with the author in advising 10 grains of calomel to patients with uncompensated heart lesions. It seems that the prostration and depression incident to the profuse diarrhea that results far outweigh the depleting value of the drug. The author fails to speak of the sedative effect of bromids in anginal states, which Sir James Mackenzie recommends so highly. Why mention blood pressure at all if diastolic pressure is omitted altogether, and the reader referred to the circular of instructions accompanying the instrument, for the method of using it? Certain inaccuracies or misconceptions, as the diagnosis of mitral regurgitation on the presence of a systolic murmur only, or the constancy of an irregular pulse late in aortic regurgitation, or the statement that diastolic murmur is sometimes heard in aortic regurgitation, have found a place in this book.

There are many commendable features, such as the large, legible print, many valuable suggestions in the sections on pediatrics, infectious diseases, tuberculosis and syphilis, and many hints for the busy practitioner in the sections on minor ailments and emergency measures. On the whole, however, it does not seem as though the book will fill a long needed want, for either the student or the practitioner.

Medicolegal

Hospital and Drunkenness of Employee Under Workmen's Compensation Act

(Hahnemann Hospital v. Industrial Board et al. (Ill.), 118 N. E. R. 767)

The Supreme Court of Illinois, considering this case on an appeal on a certificate of importance, holds that the Appellate Court erred in holding, as a question of law, that the Hahnemann Hospital was not bound by the provisions of the workmen's compensation act. The case was begun with an application by the widow of a former chief engineer of the hospital to recover compensation for his death from a fall down a stairway into the basement. The record evidence disclosed that the hospital was a corporation organized under the general incorporation act of Illinois, not as a corporation for pecuniary profit, but as a charitable institution, for the purpose of conducting and operating a hospital and for treating the sick and injured. It owned and maintained a seven-story building in the city of Chicago, equipped with one freight and one passenger elevator, power driven, in which building the hospital was conducted. The building was also equipped with engines and high-pressure boilers, and a system of electric wiring and apparatus for lighting and signals throughout the building. The Supreme Court says that only two questions were presented for its consideration: (1) Was the hospital, at the time of the accident in question, engaged in an extra hazardous occupation, and thereby conclusively pre-

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July, 1918, 2, No. 3

4 *New Pathology of Syphilis. A. S. Warthin, Ann Arbor, Mich. —p. 425.
5 *Degenerative Chorea (Huntington's Type) with Serology of General Paresis. L. G. Lowrey and C. E. Smith, Boston.—p. 453.
6 Case of Extensive Osteoporosis of Skull in Negro. R. W. Shufeldt, Washington, D. C.—p. 462.
7 Syphilis of Epididymis without Involvement of Testicle; Report of Cases. H. Lisser and F. Hinman, San Francisco.—p. 465.
8 Syphilis of Stomach; Roentgenograms of Case. S. Toucoy, New York.—p. 472.
9 Mental Disturbances and Syphilis. L. M. Gaines, Atlanta, Ga. —p. 474.
10 Vitiligo Syphilitica. M. L. Ravitch and S. A. Steinberg, Louisville, Ky.—p. 479.
11 *Antenatal Syphilis. A. J. Routh, London.—p. 484.
12 *Coagulo Reaction in Syphilis. J. A. Kolmer and I. Toyama, Philadelphia.—p. 505.
13 Syphilis in Detroit as Economic and Social Factor. R. C. Jamieson, Detroit.—p. 519.
14 Arsphenamin Icterus. K. I. Sanes, Pittsburgh, and M. Kahn, New York.—p. 529.
15 *Toxicity of Various Preparations of Arsphenamin. J. C. Sargent, Milwaukee, Wis.—p. 537.
16 Use of American-Made Arsphenamin. H. S. Baketel, Brooklyn. —p. 544.
17 *Intravenous Injections of Sodium Iodid in Massive Doses in Obstinate Syphilis. R. C. Howard, New York.—p. 550.

4. **New Pathology of Syphilis.**—The gumma is not the essential typical lesion of old or latent syphilis. It is a relatively rare formation; and the great majority of cases of syphilis run their course without the formation of gummatous granulomas. Warthin says that the new pathology of syphilis is based on the demonstration that the essential tissue lesion of either late or latent syphilis is an irritative or inflammatory process, usually mild in degree, characterized by lymphocytic and plasma cell infiltrations in the stroma particularly about the blood vessels and lymphatics, slight tissue proliferations, eventually fibrosis, and atrophy or degeneration of the parenchyma. These mild inflammatory reactions are due to the localizations in the tissues of relatively avirulent spirochetes. Syphilitic inflammations of this type occur in all tissues and organs; but are most easily recognized in the nervous system, heart, aorta, pancreas, suprarenals and testes. The syphilitic is a spirochete carrier. Syphilis tends to become a mild process; but at any time the partnership between the body and the spirochete may become disturbed, and tissue susceptibility or virulence of the spirochete become increased so that the disease again appears above the clinical horizon. Immunity in syphilis depends on the carrying of the spirochete. The disastrous effects of syphilitic infection usually require a period of years for their development. The pathologic diagnosis of syphilis is essentially microscopic.

5. **Degenerative Chorea with Serology of General Paresis.**—Two cases are presented in detail. One, originally diagnosed acute mania, showed choreatic movements and dementia for eighteen years before death, the serology of paresis being discovered two years before death. The necropsy shows characteristic lesions of paresis plus endarteritic changes; general cell devastation and gliosis, perhaps more marked in the basal ganglia; and certain changes of an uncertain character (in part postmortem?). The second case seems to represent a case of conjugal paresis; with chorea and dementia for about four years, with marked conduct disorder and certain depressive ideas. With the exception of the negative blood Wassermann, the serology is typical for paresis. The authors believe that such cases prove the importance of performing spinal fluid tests in all psychopathic patients—certainly in all with any organic disease. Choreatic paresis is apparently rare, judging by the small number of cases reported, and these are apparently the only cases in the literature in which serologic tests have established the diagnosis. Apparently, the prognosis for duration of life is good; intensive therapy should accordingly yield good results.

11. **Antenatal Syphilis.**—This paper consists of a series of suggestions which appear to Routh to explain logically some of the difficulties which now prevent a clear understanding of antenatal syphilis. Routh believes that the granules are the result of the spirillolysis or breaking-up of the *Spirochaeta pallida.* The granules are infecting agents, being, in fact, spirochetes in the granule stage. They are able to develop into the mature spirochete in a suitable environment, or may become biologically inactive and remain latent for short or long periods. Chorionic (syncytial) ferments are present at the point of interdigitation of the fetal and maternal portions of the placenta. Their action is primarily trophoblastic to enable the delicate chorionic villi to penetrate the uterine mucosa and to open up maternal blood vessels, so that the ovum may find for itself a resting place with nutritive blood spaces around it. As a result of the destructive action of the ferments on the maternal tissues so-called syncytiotoxins are formed, but appear to be at once neutralized by so-called syncytiolysins. If not thus neutralized, maternal and fetal toxemia may become present. The chorionic ferments (or their derivatives) are suggested as being capable of exercising their destructive properties on the *Spirochaeta pallida,* which may either be in the maternal intervillous or fetal intravillous tissues, both of which are in intimate relations with the syncytial cells of the villi whence the ferments arise. This destructive action of the chorionic ferments on the spirochete breaks it up into granules.

Routh further suggests that during pregnancy it is the continued action of the chorionic ferments on the granules which may render them latent and biologically inactive, and perhaps in a few cases may destroy them. After the pregnancy, when the chorionic ferments cease to be present in the tissues of the mother and child, the granules, wherever they may be, may develop into mature spirochetes. The success or failure of the chorionic ferments to protect the mother and child from spirochetal infection would depend on (*a*) the virulence of the infection, which tends to diminish, owing to the presence of more maternal antibodies, with each successive pregnancy, and (*b*) on the source of the infection. Infection is probably most difficult to arrest in a "mixed transmission" or in a true maternal infection, where attempts at infection of the embryo would be constantly proceeding throughout the pregnancy. It is probably least severe and most easily countered by the ferments when the primary infection is paternal, for it may then be a single infection only, and probably not capable of repetition if the primary infection be arrested. The Wassermann reaction of mother and child appears to be negative if infection has been by the spirochetes in their granule stage so long as the granules remain biologically inactive and the mature organism is absent.

12. **Coagulo Reaction in Syphilis.**—The coagulo reaction is based on the observations of Hirschfeld and Klinger that syphilitic serum inhibits or delays the formation of thrombin and consequently of coagulation, by an inactivating influence on cytozyme, one of the essential elements in thrombin formation. The reaction has been found a highly delicate and constant characteristic of syphilis, although in Kolmer's experience slightly less sensitive than the Wassermann reaction conducted with acceptable alcoholic extracts of heart muscle reenforced with cholesterin. The coagulo reaction is regarded as specific for syphilis, but the authors suggest that further investigations with the serums of persons suffering with various other diseases are required before a definite statement is warranted.

15. **Toxicity of Preparations of Arsphenamin.**—In compiling the comparative results obtained by the administration of the different preparations of arsphenamin, Sargent excluded all cases in which more than 0.6 gm. or less than 0.3 gm. of the drug was used because patients receiving more than 0.6 gm. of any of the preparations seldom escaped reaction, whereas no reaction was noted in those receiving less than 0.3 gm. of any of the preparations. The French preparation "arsenobenzol billon" was used in but a limited number of cases because of the expense and difficulty with which it was procured. The use of the new arsphenamin ceased after the first batch of five doses because of its apparent extreme toxicity.

Of seventy-seven doses of diarsenol there resulted 35 per cent. gastro-intestinal reactions and 1.05 per cent. vasoparetic reactions. Of ninety-seven of "arsenobenzol" there resulted 5 per cent. gastro-intestinal reactions and no vasoparetic reactions. Of nineteen doses of "arsenobenzol billon" there resulted 25 per cent. gastro-intestinal reactions and no vasoparetic reactions. Of five doses of the new arsphenamin there resulted 60 per cent. vasoparetic reactions.

Sargent concludes that gastro-intestinal reactions resulting from the administration of arsphenamin are largely the result of impurities in the drug. Vasoparetic reactions resulting from the administration of arsphenamin are entirely the result of impurities in the drug. Of the four preparations of arsphenamin commonly used in this country, the Philadelphia preparation "arsenobenzol" has the preference by being distinctly the least toxic.

17. **Intravenous Injections of Sodium Iodid in Syphilis.**—Howard's report is based essentially on original work on a private patient with laryngeal syphilis, who in spite of intensive antisyphilitic treatment extending over a number of years suddenly developed progressive features, which, unless relieved, would infalliby have required tracheotomy. The gumma in this case did not respond readily to antisyphilitic therapy, in fact proved highly resistant, for during two years and seven months the patient received thirty doses of arsphenamin, 0.6 gm. each, intravenously, besides several hundred injections of mercury salicylate, in ½ to 1 grain doses suspended in oil, at intervals of three to five days; the obligatory mercury inunctions; mixed treatment by the mouth; many courses of potassium iodid by the mouth, reaching at times several hundred drops daily; one series of about twenty intramuscular injections of sodium cacodylate in full doses. In spite of this intensive treatment, given according to the customary plan and pushed to the limit of tolerance, with intervals of freedom from all medication, the sign and symptoms of progressive malignant syphilis finally supervened in May, 1916. Without material benefit the patient received frequent intravenous doses of arsphenamin and intramuscular injections of mercuric chlorid solutions, in doses of ¼ to ½ grain.

June 24, 1916, initial dose of 30 grains increasing each dose by 5 grains, up to a minimum of 335 grains. Suitable veins were very hard to find after a large number of these injections had been applied, and the treatment often had to be interrupted for a few days, until thrombotic veins had again become permeable, or perivascular swelling had subsided. After an interruption a smaller dose was usually given, about 200 grains as a rule, rapidly increasing the size of the dose until the treatment had to be stopped for lack of available veins. Iodism was only exceptionally responsible for a temporary suspension of the treatment; its symptoms were those of gastric irritation and essentially mild, in form of regurgitation of small quantities from the stomach. A cutaneous eruption of petechial spots was occasionally noted. In a general way the treatment was remarkably well borne in spite of the enormous daily dosage. It is also noteworthy that the patient preferred the intravenous method of administration, as the iodids given this way did not upset the stomach. During the entire course of iodid treatment mercury and arsphenamin were likewise administered to the limit. However, within a few weeks after starting the intravenous iodid medication, improvement was so obvious that the patient could eat, sleep and work in comparative comfort. Furthermore his voice considerably improved and this amelioration continued right up to the time when all intravenous iodid injections were stopped for want of veins.

This patient received 125 injections; amount of sodium iodid, 26,013 grains or about 3¾ avoirdupois pounds, or 1,685.7 gm.; average dose for 125 doses, 208 grains, or 13.5 gm.; average dose per day for entire period of 224 days, 116 grains, or 7.5 gm. Solutions of from 5 to 10 per cent. strength were correct, below 5 per cent. too bulky; above 10 per cent. too irritating. The optimum strength for universal use is 8 per cent. A stock solution of sodium iodid in distilled water should be made so that 1 minim of the solution contains 1 grain of the salt and this carefully filtered. Of this solution the dose is measured and water (preferably freshly distilled) is added to make the desired strength and a moderate excess to allow for evaporation. The solution is then sterilized by boiling in a beaker or flask for ten minutes, and cooled to 105 F. when it is ready for injection.

American Review of Tuberculosis, Baltimore

July, 1918, 2, No. 5

18 *Treatment of Tuberculosis. G. E. Bushnell.—p. 259.
19 Methuselah and Life in Open. V. Y. Bowditch, Boston.—p. 276.
20 *Tuberculosis; Its Treatment and Mistreatment. J. V. Wright, Dallas, Texas.—p. 285.
21 *Comparison of Wassermann Reaction and Serochemical Reaction of Bruck in Tuberculosis Sanatorium. H. J. Corper and L. Fiala, Chicago.—p. 290.
22 *Results of Wassermann Reaction in Tuberculosis Sanatorium. H. J. Corper, Chicago.—p. 294.

18. **Treatment of Tuberculosis.**—Bushnell says that too often he has seen very serious harm from tuberculin, as employed by others, to be enthusiastic concerning its use. Tuberculin is most helpful to those who need help least. Advanced cases of tuberculosis are very seriously injured by it. But the rather numerous class of sanatorium patients who have little or no active tuberculosis, their disease being of a chronic though often diagnosticated as acute, type are able to tolerate it sometimes apparently to their advantage. Those physicians whose practice is mostly confined to cases of well marked manifest pulmonary tuberculosis are rarely enthusiastic advocates of its use. An accurate diagnosis is indispensable. Tuberculin in the hands of the ignorant is a terribly deadly weapon. Bushnell believes that cases of genuinely active tuberculosis are more often harmed than benefited by it and is of the opinion that better results in the long run for the average patient are attained by the physical treatment. He is therefore opposed to its use in army hospitals.

20. **Treatment and Mistreatment of Tuberculosis.**—When we make a diagnosis and tell the patient to go West and rough it, or to go home and go to bed, or to go to some institution without looking into the problems which confront us in sending a patient to an institution and without selecting the institution fitted to this particular case; as for instance, to send a patient with a definite uncompensated heart lesion to an altitude of 4,000 or 5,000 feet; or tell the patient that he will be well in two or three months, or we will cure him for a certain amount of money, or we can give him medicine or use any other one measure that will cure him, Wright says we are mistreating tuberculosis.

21. **Wassermann and Bruck Reaction in Tuberculosis.**—The Bruck serochemical reaction for syphilis according to Corper and Fiala is unreliable as a test to supplant the Wassermann reaction in the tuberculosis sanatorium. As far as could be noted by the authors in their observations it gives no data of value. Of a total of fifteen definitely positive (plus, plus or stronger) Wassermann reacting serums, six gave a negative serochemical reaction; of a total of 213 negative Wassermann reacting serums, 113 (53 per cent.) have a positive Bruck test. The percentage of positives was greater among the moderately advanced (63 per cent.) and far advanced (70 per cent.) cases than among the nontuberculous (33 per cent.), questionably tuberculous (46 per cent.) and incipient (36 per cent.) cases. There was no predisposition for patients with temperature (persistently over 100 F.) to give a positive Bruck reaction (of forty-five cases) with temperature, eighteen gave negative tests). Patients dying of pulmonary tuberculosis within three months of the time of making the test were found to give indiscriminately positive and negative reactions. The activity of the case was likewise of no significance.

22. **Tuberculosis and Wassermann Reaction.**—As a result of the routine serologic blood examination of 1,395 men and 1,399 women residents of the City of Chicago Municipal Tuberculosis Sanitarium, a definite positive Wassermann reaction was obtained in 7.2 per cent. of the men and 5.8 per cent. of the women. The incidence of a definite positive Wassermann reaction, so far as this could be determined, did not reveal any striking differences from the above figures resulting from a classification of the cases according to different ages or different nationality or race.

Annals of Surgery, Philadelphia

July, 1918, 68, No. 1

23 *Use of Fascial Transplants in War Surgery. L. C. Balleuil and W. D. Jack, France.—p. 1.
24 *Ventriculography Following Injection of Air into Cerebral Ventricles. W. E. Dandy, Baltimore.—p. 5.
25 Laminectomy and Regional Anesthesia. C. H. Frazier, Philadelphia.—p. 12.
26 *Advisability of Totally Excising Both Pectoral Muscles in Radial Operation for Cancer of Breast. W. Meyer, New York.—p. 17.
27 Interrelation of Stasis, Ptosis and Inertia of Intestinal Tract. J. C. O'Day, Honolulu, Hawaii.—p. 27.
28 Case of Obliteration of Common Bile Duct Following Operation. M. Behrend, Philadelphia.—p. 32.
29 Clonorchis Sinensis (Liver Fluke) Infection of Gallbladder and Biliary Passages. F. C. Watson, Lexington, Tenn.—p. 34.
30 Case of Fused Kidneys. B. Lipshutz and C. Hoffman, Philadelphia.—p. 39.
31 Surgical Importance of Supernumerary Arteries to Kidney. D. N. Eisendrath, Chicago.—p. 53.
32 Plastic (Reconstructive) Surgery of Hand and Forearm. A. B. Gill, Philadelphia.—p. 555.
33 *Fibrin Paper as Hemostatic Agent. S. C. Harvey.—p. 66.

23. Use of Fascial Transplants in War Surgery.—The authors have used fascia lata grafts in cases of extensive scars of the forearm or leg involving either the flexor or extensor tendons and thus producing disability have been the most common. Muscle hernias have also been repaired in this way; aponeurotic grafts have been applied to the dura and in one case the method was utilized in repairing a hernia of the synovial membrane of the knee joint. Balleuil and Jack believe that the method is applicable to the whole field of plastic surgery and is of great value in rebuilding muscle sheaths and in repairing muscle hernias. Cases are cited.

24. Ventriculography Following Injection of Air Into Cerebral Ventricles.—The outlines of the lateral cerebral ventricles can be sharply outlined by the roentgen ray if air is substituted for cerebrospinal fluid. The injection of air into the ventricles had no deleterious effects in twenty cases in which it was employed by Dandy. Ventriculography has already proved of great practical value in the diagnosis and localization of many intracranial conditions. The author found it invaluable in internal hydrocephalus. The method has thus far been used only in children.

26. Total Excision of Both Pectoral Muscles in Breast Cancer.—The total extirpation of both pectoral muscles in every case of radical operation for cancer of the breast, Meyer holds is logical and, as a surgical procedure, clearly indicated, particularly in view of the possible lymphatic arrangement. The author urges that it should be adopted as a routine procedure.

33. Fibrin Paper as Hemostatic Agent.—Bleeding from multiple small vessels, from vessels in delicate tissue and from sinuses can be controlled by the application of fascia, muscle or fibrin. The peculiar advantage of the use of these tissues is that they can be left within the wound, thus avoiding the danger of stripping off the coagulum. A method is described for converting fibrin into a fabric easily kept, sterilized and applied. This material is found to correspond in effectiveness and amenability to absorption with the untreated fibrin, while being far more adaptable to the operating room technic.

The fibrin of beef blood is passed through a fine meat chopper and washed in running water for twenty-four hours in order to free it of the other constituents of the blood. It is then shredded by prolonged trituration in a mortar and shaken up with about twice its volume of water. This is thrown, while in suspension, into a tray with a screen bottom, over which is laid a single layer of ordinary surgical gauze. With a slight oscillatory movement of the tray, the water runs through, leaving an even layer of fibrin deposited on the gauze. This is covered with another layer of gauze and turned out on a towel, being handled gently so as not to tear the fibrin film. The whole is placed between two towels of double thickness and introduced between two pressure plates. These plates are approximated with as great pressure as possible by the tightening of the bolts inserted at their edges. The apparatus is placed in an autoclave and treated with steam pressure of 15 to 20 pounds for thirty minutes. On removing the film it is found to be "welded" into a sheet of paper-like material from which the gauze can be stripped off readily leaving a rough surface. The thickness of this sheet depends on the amount of fibrin thrown on the screen.

This fibrin paper is quite elastic and possesses a surprising amount of tensile strength. When damp it can be handled like any fabric, but on exposure to the air it dries, becoming hard and somewhat brittle. When placed in water it rapidly softens and resumes the appearance shown on its first removal from the autoclave. On heating, water is first driven off and then the material burns much as dose horn and with the peculiar odor of burning horn or hair. Boiling or further sterilizing with steam has no effect on it, thus enabling one to sterilize it repeatedly. It is not soluble in alcohol, ether, chloroform or acetone, these substances drying it and rendering it brittle. Strong acids and alkalies cause it to swell and they slowly digest it while the action of these substances in dilution is scarcely perceptible.

It is possible by using a pressure cylinder to turn out blocks of the material which can be cut directly with the mictrotome so as to form stamps some 15 to 18 microns in thickness. When dried these blocks can be drilled or turned on a lathe in much the same manner as can be done with hard rubber. For the purpose of hemostasis this substance was tried as cut by the microtome in quite thin sheets, and in the paper form as removed from the press with the thickness of about 0.5 mm. For use in the operating room the paper is made as thin as possible, is sterilized in the autoclave for one hour and then allowed to dry, in which condition it can be stored for months. When desired a piece is dropped in the instrument sterilizer and boiled for ten minutes, after which it is kept in sterile salt solution until used. In this way one has always at hand an absorbable, sterile material, easily handled, with which this type of bleeding can be controlled and which can safely be closed within the wound.

Archives of Pediatrics, New York

July, 1918, 35, No. 7

34 *Use of Thick Farina in Treatment of Pyloric Stenosis. L. W. Sauer, Chicago.—p. 385.
35 *Diseases that Can, with Assurance, Be Referred to Absence of, or Derangement with Function of, Ductless Glands. A. S. Root, Raleigh, N. C.—p. 401.
36 *Use of Carbo Animalis in Diarrheas of Childhood. O. W. Rowe, Duluth, Minn.—p. 406.
37 Standardized Physical Examinations. W. R. P. Emerson, Boston.—p. 411.

34. Thick Farina in Pyloric Stenosis.—Thick farina feedings have been given by Sauer in twelve cases of pyloric stenosis. In all but one case the effect of the thick feedings was striking. In eleven of the twelve patients the vomiting soon stopped, although in most of the cases the peristaltic waves and the tumor (where palpable) persisted for weeks or months after the vomiting ceased. Eleven of the twelve patients are now in excellent health, the remaining one dying of bronchopneumonia eight weeks after the vomiting had ceased. Of the twelve babies all but two were on the breast when the vomiting began. Eleven of the infants were taken care of in the home, six by the mother without any trained assistance. Most of the infants were seen at the age of from 6 weeks to 2 months. Sauer points out that at this time the feeding of a thick cereal may become quite a tedious task. Inasmuch as the consistency of the cereal seems to be the all-important factor in this treatment of pyloric stenosis, it is very necessary to use the utmost care in the preparation of the food. One part of farina to 7 parts of fluid (3 parts of milk to 4 parts of water) boiled in a covered double boiler for an hour usually makes a cereal of proper consistency. Such a food consists of about 15 per cent. cereal. Sugar and salt may be added.

A satisfactory way of giving the food is to have the required amount of the prepared food in a cup immersed in a shallow saucepan containing hot water. By taking a little of the warm, thick cereal on the end of a narrow tongue depressor it can very easily be placed far back into the open mouth and scrapped off with another tongue depressor. A great deal of patience is usually required during the first week as the young infant often keeps the thick cereal in the mouth for some time before swallowing. An hour or more is often required to give a feeding of a few tablespoonfuls. Two to eight tablespoonfuls of such cereal may be given six or eight times a day. In cases in which breast milk is available, one or more tablespoons of the cereal may be given before the nursing or bottle breast milk feeding. If such a regime proves unsuccessful four thick cereal feedings and three breast milk feedings may be tried for a few days. If this fails to stop the vomiting and loss of weight, then all feedings should consist of the thick farina. In very severe cases such a procedure is probably the most satisfactory. Any available breast milk can be added to the cereal provided the consistency of the food is not diminished thereby. The child should then be placed on the right side. During the critical weeks of the treatment most of the infants were handled very little, and seldom taken up during or after a feeding. The child usually rested on a rather firm pillow of soft feathers. This precaution was taken to reduce to a minimum the contraction of the recti and other abdominal muscles. The child is placed on the right side for a few hours after each feeding. Stomach washings probably have some value in freeing the stomach of residual food and mucus. A 1 per cent. sodium citrate solution was used.

35. **Ductless Glands and Disease.**—The only diseases which, in Root's opinion can, with assurance, be attributed to an absence or derangement of function with the ductless glands are those referable to the thyroid, that is, myxedema, hyperthyroidism and exophthalmic goiter. He admits that there is some evidence, through scientific experimentation, to support the view that Fröhlich's syndrome is due to a derangement with function of the pituitary gland. The clinical evidence in favor of giving pituitary gland in cases of diabetes insipidus, Root says, is sufficient to warrant its administration, but prescribing preparation of the endocrine glands for obscure disorders, cannot be too strongly condemned. A plea is made for the early recognition of cretinism, in order that the best end-results may be obtained from early thyroid treatment.

36. **Carbo Animalis in Diarrheas of Childhood.**—In a series of cases of enteritis no other medicine was given by mouth than carbo animalis. Water was given frequently in large amounts, and, in cases showing marked dehydration, proctoclysis was attempted. All patients except those received in a comatose condition were fed at the end of twelve to twenty-four hours. The foods were as follows: breast milk, 16 per cent.; some modification of malt soup, 62 per cent.; protein milk, 12 per cent., and whole milk mixtures in 10 per cent. of the cases. Protein milk was not given for its absorptive powers. Cereals and toast were offered early to older children. The most obvious effect of the charcoal therapy was the checking of the frequent watery stools; 74 per cent. of the patients passed formed stools by the fifth day, and 14 per cent. more by the sixth day. In cases in which the lesion was in the lower bowel, it was not unusual to have a movement consisting of blood and mucus, immediately after the formed stool.

Rowe states that the appearance of a formed stool does not indicate that the disease process has been stopped entirely, but it does show that the diarrhea, the most serious symptom, has been controlled. The effect of the therapy on vomiting was excellent. In former years lavage has been done occasionally. With charcoal therapy this measure was found unnecessary. That all toxins are not absorbed is indicated by the hyperpyrexia and other symptoms of toxemia, in some cases persisting for many days after formed stools are obtained. Three very mild cases treated on general hygienic principles, without laxatives or medicine, recovered as promptly as cases of similar duration treated with carbo animalis, but lost more in weight, due undoubtedly to a more restricted diet.

Rowe emphasizes that the preparation of charcoal used and the dosage are of the utmost importance. The dosage should be relatively large, given regularly at least every four hours. The coal may be given in water or oatmeal gruel; it should not be given in gelatin where peristalsis is active. The only bad effect which could possibly be laid to this treatment was an increase in the number of cases complicated by stomatitis. The chief advantages of this treatment are: 1. Vomiting is readily controlled. 2. The frequent loose, watery bowel movements are definitely checked, thus preventing dehydration. 3. An early return to a full diet is permitted. 4. Convalescence is shortened.

Journal of Laboratory and Clinical Medicine, St. Louis

July, 1918, 3, No. 10

38 *Tolerance and Immunity. J. L. Marchand, Prinsapolka, Nicaragua, C. A.—p. 571.
39 *Pneumonia and Meningitis. P. G. Woolley, Camp Greene, N. C. —p. 602.
40 *Relation of Peptone to Biologic Reactions. W. A. Jamieson, Indianapolis.—p. 614.
41 Recommendations of Committee on Standard Routine Method for Isolation and Identification of Hemolytic Streptococci from Throats, Sputums and Pathologic Exudates. W. L. Holman and others.—p. 618.
42 Simplified Gas Analysis. J. J. R. Macleod, Cleveland.—p. 622.
43 Smple Method of Measuring Antisheep Amboceptor Content of Human Serum and Correcting for It in Wassermann Tests. J. J. Seelman, Milwaukee, Wis.—p. 626.

38. **Tolerance and Immunity.**—Marchand believes that protein sensitization and bacterial immunity, apparently antipodal, are in reality identical. Vaccines are protein sensitizers. When proteins are subjected to the action of disrupting agents, as when introduced parenterally, there is the possibility of the chemical nucleus being set free more or less completely, and to the extent that it is detached it becomes a poison. The protein poison is not specific. The tolerance which may be secured by the protein poison is not specific. The sensitization developed by a protein is specific, but is not due to the poisonous group of the protein. The poison elaborated in all infectious diseases is the same.

39. **Pneumonia and Meningitis.**—Woolley's analysis of cases leads him to conclude that pneumonia and meningitis are due to invasion of bacteria which are inhabitants of the upper respiratory tract, that the conditions under which they become more or less widespread or epidemic are not understood, and that the only method for preventing their spread is to apply antiseptic methods to the mouth and nasopharynx. The application of such methods should be put into practice in advance of the season of the year during which the incidence of respiratory diseases rises.

40. **Relation of Peptone to Biologic Reactions.**—With the outbreak of the war and the consequent curtailment of the supply of Witte's peptone, the question of the production of potent diphtheria toxin became acute. American peptones already on the market, while satisfactory for the production of tetanus toxin and allowing a profuse growth of *B. diphtheriae*, did not give a satisfactory toxin production. Other American peptones were soon available which gave a diphtheria toxin of low potency. Of the most of the American peptones one lot might give a toxin of 400 to 600 minimum lethal dose per mil, while the next lot might give no toxin at all. To overcome this discrepancy, Jamieson says, a peptone was made up as nearly as possible of the same composition as Witte's peptone, with some variation, however, which there was reason to believe would make it a better peptone than Witte's. Toxin was produced with this peptone, using as comparison Witte's peptone and American brands. In all cases the new peptone gave the most potent toxin, and Witte the next highest. The toxin produced with the special peptone has tested as high as 1,000 minimum lethal dose per mil; it consistently tests 500 to 600 minimum lethal dose per mil. The Witte peptone has tested about 500 minimum lethal dose per mil, while the American brand has made toxin fluctuating between 100 and 300 minimum lethal dose per mil. Experiments were made to determine whether the peptone employed in the toxin production had a detrimental effect when injected into animals; or whether the peptone was such that the growth of the diphtheria organism would produce by-products which were injurious when injected into animals. The results of these experiments indicated that care should be exercised in the selection of peptone for the production of diphtheria toxin, inasmuch as the peptone used may influence the physical condition of the animal injected with the toxin. The peptone employed in the production of diphtheria toxin influences the potency of the toxin and what

is of greater importance the ratio of the constituents of the toxin as shown by the ratio of the minimum lethal dose to lethal plus dose. The peptone used in the production of antigens employed in immunologic tests will influence the results of the tests.

Medical Record, New York

August 10, 1918, **94**, No. 6

44 Physical Basis of War Shock. H. Wakefield, New York.—p. 223.
45 Treatment of Empyema by Carrel-Dakin Method at War Demonstration Hospital, Rockefeller Institute for Medical Research. G. A. Stewart, New York.—p. 236.
46 Federal Effort to Promote Science of Veterinary Medicine. R. W. Shufeldt, Washington, D. C.—p. 237.
47 Torn Cervix vs. Uterine Inertia. E. R. Corson, Savannah, Ga. —p. 239.
48 Importance of Rest After Meals. P. Getson, Philadelphia.—p. 241.

New York Medical Journal

August 10, 1918, **108**, No. 6

49 Blood and Soul. J. Wright, Pleasantville.—p. 225. To be continued.
50 Etiology en Echelon. (By Degrees). W. P. Cunningham, New York.—p. 227.
51 Acute Coryza; Intranasal Complications, Diagnosis and Therapeutics. E. Danziger, New York.—p. 234.
52 Food Value of Bread. R. McD. Allen, New York.—p. 236.
53 Immunity in Tuberculosis. M. Staller, Philadelphia.—p. 240.
54 Experience with Class in Malnutrition. J. L. Kantor, New York. —p. 241.
55 Examination of Recruits for Tuberculosis. R. C. Matson, Portland, Ore.—p. 245.

Psychiatric Bulletin, Albany, N. Y.

October, 1917, **2**, No. 4

56 *Study of Retention in Korsakoff Psychosis. D. Wechsler, Corona. —p. 403.
57 Statistical View of Mental Diseases in New York State Hospitals. H. M. Pollock.—p. 452.
58 *Study of Mental Content of Epilepsy. L. P. Clark, New York. —p. 483.

56. **Study of Retention in Korsakoff Psychosis.**—Wechsler is of the opinion that the prime cause of the retention defect in Korsakoff psychosis is the patient's inability to form new associations.

58. **Study of Mental Content of Epilepsy.**—A study of the mental content, both conscious and unconscious, in epileptics, Clark says, demonstrates: (1) the depth of the unconscious regression, (2) the special types of conflict which the epileptic has and the way he tries to solve them, (3) the specific type of primary defect in his endowment. Its therapeutic value in addition to the above is (4) to furnish a specific point of analytic attack by simple explanatory talks, and (5) to show more definitely the type of special education which should be adopted for each individual patient.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Tuberculosis, London

July, 1918, **12**, No. 3

1 Diagnosis and Treatment of Hemoptysis in Cases of Pulmonary Tuberculosis. N. Robertson.—p. 103.
2 Tuberculosis and Toxemia. E. G. Glover.—p. 117.
3 Treatment of Pulmonary Tuberculosis. J. E. Bullock.—p. 127.
4 Housing of Consumptive Families. J. T. Neech.—p. 129.

British Medical Journal, London

July 20, 1918, **2**, No. 3003

5 *Treatment of Asthma by Peptone. A. G. Auld.—p. 49.
6 Epidemics. J. Burnford.—p. 50.
7 Nasopharyngeal Conditions in Meningococcus Carriers. F. J. Cleminson.—p. 51.
8 Two Cases of Vulvitis Caused by Accumulated Secretion of Tyson's Glands. J. D. Malcolm.—p. 55.
9 Value of Artificial Pneumothorax in Arrest and Prevention of Hemoptysis in Pulmonary Tuberculosis. Z. P. Fernandez. —p. 55.
10 Future of Medical Profession. B. Dawson.—p. 56.

July 27, 1918, **2**, No. 3004

11 Broken Sleep. G. Rankin.—p. 77.
12 Buffer-Salts of Blood. W. M. Bayliss.—p. 78.
13 Part Played by Bone Graft. M. Mamourian.—p. 79.
14 Report on Influenza Epidemic of 1918. O. H. Gotch and H. E. Whittingham.—p. 82.
15 Physicians' Problem. A. L. Jones.—p. 85.

5. **Treatment of Asthma by Peptone.**—Auld has had good results in the treatment of asthma from the intravenous injection of peptone. He dissolves the peptone as far as possible in normal saline (made up to three-quarters volume) by slightly agitating and warming at 37 C. Then add 1 mil of a 2 per cent. solution of sodium carbonate for each ⅓ gm. (5 grains) peptone. This ensures the requisite degree of fineness of the suspended portion. Make up to volume with normal saline, adding 0.25 per cent. phenol as a preservative. Care is to be taken in adding the alkali, as any excess may cause racemization of the peptone, rendering it inactive. Peptone No. 2 is similarly prepared, the alkali being employed in this case to neutralize its acidity.

As regards the dosage, it is only possible to make a general statement, as variations may be necessary. When the main attacks, whether occurring singly or more or less broken up, occur at fairly pronounced intervals, a limited number of measured doses is usually sufficient. Should slight attacks persist, the dose may require to be increased. A feeling of chilliness and discomfort indicates that the limits have been overstepped. On the other hand, the dosage must be reduced when the attacks present great frequency and irregularity. In such the antianaphylactic mechanism is weak, or, in other words, the immunity reserve is small and will only tolerate gentle stimulation. Experience alone can enable one to decide the dosage, according to the symptoms and progress of the case; also, patients differ very considerably in their response to peptone. Generally speaking, the initial dose in all cases may be fixed at 3 decimils (5 m.); increase by 2 decimils (roughly 3 m.) every fifth day, until six injections have been given. Three or four more injections are to be given, employing in each the same dose as that given in the sixth injection. To this rule, however, there are exceptions. No reaction appreciable by the patient occurs. At any time during the course modifications in the dosage may be called for, as already indicated. In the case of children but a very slight reduction in the dose is necessary. No injection is to be given during attacks, and, when the latter occur at long intervals, begin the treatment about three weeks before one is expected. In all cases the diet should be low, and easily digested.

Bulletin of Canada Army Medical Corps, Ottawa

July, 1918, **1**, No. 4

16 Transplantation of Bone in Repair of Cranial Defects. C. H. Gilmour.—p. 50.
17 Cerebrospinal Fever. F. B. Bowman, F. Adams and R. N. James. —p. 52.
18 *Report on Series of Gassed Cases. S. G. Ross and A. T. Henderson.—p. 58.
19 Early Diagnosis and Treatment of Primary Syphilitic Lesions. A. B. Jackson.—p. 60.

18. **Report of Gassed Cases.**—Seventy-two per cent. of the men seen by Ross and Henderson complained of soreness in the eyes at some period. Of these, 47 per cent. showed conjunctivitis on admission. Irritation of the nose and the throat was a frequent effect. A history of sneezing shortly after being gassed was given by 55 per cent. of all patients. A large proportion of these men had coryza (forty-six out of the last 153 cases examined). Most of these had a profuse watery discharge from the nose. Pharyngitis was commonly present. The larynx was commonly affected in 63 per cent. Another common symptom was that of pain in the chest; 57 per cent. of the men complained of this. Cough was present in 80 per cent. of the cases; bronchitis in 15 per cent.; dyspnea in 27 per cent.; cyanosis in 6 per cent. Beyond quickening of the pulse in some cases, there was no evidence of the heart being affected. Vomiting was present in 60 per cent. of the cases; 10 per cent. had nausea without vomiting. Abdominal pain was complained of by 19 per cent. It was nearly always referred to the epigastrium, and was stated to be of a steady burning character. Only one man had crampy pains. Diarrhea occcurred in 2 per cent.

Twenty-four per cent. of the men showed definite skin lesions. One half of these had blistering. The remainder showed first degree burns only; 78 per cent. of the men complained of headache at one time or another. Three men gave a history of collapsing or fainting. A number of men complained of weakness and pains in the muscles. One man only showed definite jaundice. Forty-three men showed a temperature of 99 or over on admission, and of these thirteen had a temperature of over 100 F. Bronchitis was present in ten of these cases, and the fever of the remainder might be accounted for by laryngitis or burns; 11 per cent. had a pulse of 90 or over, under half of these associated with fever. A few cases only showed increased respiratory rate. The vast majority of cases seemed to be due to the Yellow Cross (phosgene) gas.

Dublin Journal of Medical Science

July, 1918, **146**, No. 559

20 Two Cases of Mediastinal Abscess of Traumatic Origin; Operation; Recovery. H. L. W. Woodroffe.—p. 1.
21 Hygiene from Soldier's Point of View. W. F. Wicht.—p. 7.
22 Ireland's National Health; Analysis of Cases Occurring in Southern Seaboard District and Its Lessons. M. F. Moloney—p. 17.

Glasgow Medical Journal

July, 1918, **90**, No. 1

23 Change of Type in Disease. E. Duncan.—p. 1.
24 *Gastro-Intestinal Toxemia as Cause of Nephritis. W. Watson.—p. 17.

24. **Gastro-Intestinal Toxemia as Cause of Nephritis.**—Watson cites three cases in which gastro-intestinal disease caused a secondary nephritis. In each of these three cases the arresting feature has been the abnormality in the gastro-intestinal canal. In the first there was pyorrhea, dilatation of the stomach, with a history of inflammation of the stomach, and the tongue bore distinct evidence, from the enlargement of the papillae, that there was an abnormal condition of the ileum. The second patient had septic ulcers in her mouth and on her tongue, and a constant discharge of purulent material from her nose, which in all probability, through being discharged into the pharynx, was the cause of the septic condition which appeared in the upper part of the alimentary canal. The discharge from this, on being swallowed would ultimately infect the intestine itself. The third patient had equally arresting gastro-intestinal symptoms, with physical signs which point, beyond doubt, to a gastro-intestinal cause. He emphasizes the importance of recognizing this etiologic relationship because of the treatment to be adopted and because of its bearing on prognosis.

Journal of Laryngology, Rhinology and Otology, London

July, 1918, **33**, No. 7

25 Congenital Appendages or Teratoid Tumors of Nasal Septum. A. B. Kelly.—p. 193.
26 Unit of Sound: Stefanini's Phonometer with Ball and Sounder. D. Gradenigo.—p. 197.
27 Maxillary Antrum in Mastoiditis. H. Bodkin.—p. 200.
28 Intrinsic Cancer of Larynx and Operation of Laryngofissure. I. Moore.—p. 202. To be continued.

Lancet, London

July 20, 1918, **2**, No. 4951

29 War Injuries of Eye. W. T. Lister.—p. 67.
30 *War Deafness with Special Reference to Value of Vestibular Tests. P. McBride and A. L. Turner.—p. 73.
31 *Gunshot Fractures of Femur. P. Turner.—p. 74.
32 *Treatment of Fracture of Shaft of Humerus by Splints. C. A. Morton.—p. 77.
33 Future of Medical Profession. B. Dawson.—p. 83.

30. **War Deafness and Vestibular Tests.**—From analysis of a large number of cases which they examined McBride and Turner conclude that concussion deafness is generally due to some organic change. The prognosis is usually bad. The results of the vestibular tests can only be utilized in conjunction with information derived from other sources. Thus, if the patient shows other hysterical symptoms, vestibular tests may perhaps under certain circumstances help diagnosis; to state that they do more than this is misleading and dangerous.

31. **Gunshot Fractures of Femur.**—In cases in which "sagging" was present to a marked degree, and in cases of fractures of the upper and lower part of shaft with typical displacements Turner has made use of a method in which the straight Thomas' splint and the ordinary methods of obtaining extension and preventing rotation are used, and which can be employed in conjunction with any method of suspending or supporting the splint. The principle of this method, which has been called "wire suspension and traction," is that a loop of silver wire is manipulated round the free end of the displaced fragment, which is then pulled into position, and maintained so by attaching the wire to a rigid arch passing over the limb between the two bars of the splint. The splint is first put into position, supports are arranged, and strong extension is obtained by a spring. The limb is now held so that the foot shows a position of slight external rotation, and the lateral supports which control rotation are applied. Both the extension and lateral supports can be readjusted, if thought necessary, after the wire suspension has been carried out. The wire employed is ordinary silver patella wire.

Where there is an oblique fracture, or where the comminution is not severe, the end of a suitable length of wire may be twisted to form a loop. The ends of the fragments are usually already denuded of soft parts, and can be felt by a finger in the wound. The wire loop is then introduced and with the help of the finger is insinuated round the free end of the displaced fragment. In the event of the free end of the fragment not being sufficiently exposed, a periosteal elevator may be used to clear it for a short distance, but extensive baring is neither necessary nor desirable. The displaced fragment is now pulled up into position, and when the finger shows this to be accomplished, the wire is attached securely to the rigid arch, which has been sterilized and fixed in the proper position. If the pull is made obliquely and if the wire is fastened in this direction there will be no danger of the loop slipping off, that is, if a backwardly displaced lower fragment of a supracondyloid fracture is being treated the pull should not be straight forward, but also slightly in a downward direction toward the knee. There is also, as a rule, some lateral displacement of the fragments, the upper being abducted and the lower adducted. This must also be taken into consideration when drawing the fragment into position and fixing the wire.

In fractures of the lower and middle thirds of the shaft of the femur, the attempt should be made to draw the lower fragment into line with the upper, and hence the single wire around the lower fragment will, as a rule, be sufficient. In some cases of sagging, however, where the upper fragment is abducted and the lower adducted or the reverse, excellent alinement may be obtained by two wire loops, one drawing the lower fragment forward and outward and the other the upper fragment forward and inward. Backward traction of the upper fragment in fractures in this region is seldom required, and in a few cases in which Turner has employed it in this region the wire has soon been found to be unnecessary and has been removed.

If there is much comminution all completely detached fragments should be removed and the wire or wires should pass round the extremity of one or both main fragments, including, if possible, any large piece of bone which is not quite loose. In some comminuted fractures it may be possible to pass a wire round all the fragments and cross the wire again in front so as to bind them together and at the same time to raise the bone to its correct position. Efficient drainage having been secured, attention is directed to the extension, and, if necessary, the spring and the lateral supports are readjusted. The supports beneath the thigh should also be tightened up so as to raise the soft parts and take some of the weight of the limb off the wire. After sagging of the fragments has been corrected there may be a sagging of soft parts due to edema and the dropping back of muscles and soft tissues which gives a very similar outline to the thigh, though a roentgen-ray examination may show a perfect alinement. The presence of the wire causes no irritation or increase of sepsis.

The shortest time the wire has been left in position is two weeks; and in this case, where there was some cutting into the muscle and a little oozing of blood, there was no recurrence of the displacement. It is better to allow three or four weeks, or even longer, to elapse before removing the wire, as its presence causes no trouble; in one case it was left for eight weeks. The amount of bone lost and the roentgenographic evidence of union will guide as to the advisability of removal. If the ends of the loop can be seen the wire may be cut and pulled out at an ordinary dressing, but if out of view in the deeper part of the wound nitrous oxid anesthesia will be desirable.

32. **Fracture of Humerus Treated by Splints.**—There is only one way, says Morton, in which a fracture of shaft of humerus can be absolutely fixed, and that is against the chest wall. By using the combination of a posterior and an internal splint, fixed together and fixed by plaster to the chest, a stable support is provided for the arm when the patient is sitting up or lying down.

Medical Journal of Australia, Sydney

June 29, 1918, **1**, *No. 26*

34 Spinal Bone Grafting. T. E. L. Lambert.—p. 529.
35 Case of Rat-Bite Fever in Sydney. O. R. P. Muller.—p. 531.
36 Uncommon Inguinal Hernia. J. B. Nash.—p. 532.

Archives Médicales Belges, Paris

January, 1918, **71**, No. 1

37 *Staphylococcus Infection. P. Nolf, J. Bossaert and A. Colard.—p. 1.
38 The Pedagogic Pretensions of Psychanalysis. P. Voivenel.—p. 19.
39 *Disability from Hemianopsia. E. Rasquin.—p. 32.
40 Present Status of Oculocardiac Reflex. H. Fredericq.—p. 46.

37. **General Staphylococcus Infection.**—The symptoms may range from a mild fever for a few days to grave septic pyemia. The staphylococci were sometimes found in the urine in the twenty-four cases described, but they were usually rare and scant. In some cases they were found in the urine up to weeks and months after apparent recovery, but there were no traces of kidney or bladder lesions at any time. The staphylococcus was seldom found in the blood. When a man with some cutaneous lesion containing staphylococci is taken suddenly with fever, headache and pains in the bones, especially in the legs, and nothing pathologic can be found in heart, lungs, intestine, kidneys or nervous system, the assumption of general staphylococcus infection seems justified. Most of the men recovered in a few days under bed rest and light diet. It seemed that 3 gm. of hexamethylenamin in twenty-four hours had a favorable effect. In the more rebellious cases, 5 cg. of methylene blue was given with each 50 cg. dose of the hexamethylenamin. The fever kept high in one case for weeks until a series of five intravenous injections of 8 c.c. of a 10 per cent. solution of peptone were made on alternate days. Then quinin was substituted for the peptone for nine days, and then the peptone was resumed for six days. This patient was in the hospital for nearly seven weeks. In some of the other cases the staphylococci did not disappear from the urine until after a series of injections of peptone, with or without an autogenous vaccine.

39. **Disability from Hemianopsia.**—Rasquin is chief of the eye department of the Belgian hospital at Havre. He comments on the large number of cases of hemianopsia encountered among the wounded. He classifies them according as the individual requires or not the aid of another person. If the disability in the latter group is accepted as 100 per cent., in the other—with retention of central vision—it should be 120 per cent. The German laws grant 125 per cent. A gap in the visual field is more disabling the closer it is to the point of fixation. He gives a colored plate showing the eight different parts of the visual field that may be lost, and the relative disability from each.

Bulletin de l'Académie de Médecine, Paris

June 25, 1918, **79**, No. 25

41 *Ear Disturbances in Aviation. A. Castex.—p. 458.
42 *Resumption of Work by the War Cripples. J. Gourdon.—p. 459.
43 *Spirochete of Pseudotuberculosis. F. Barbary.—p. 461.

41. **Ear Disturbances in Aviation.**—Castex describes the various sensations experienced by aviators when they rise rapidly to 12,000 or 15,000 feet, the altitude at which the airmen usually attack enemy airplanes. The barometer registers from 47 to 41. The ear suffers particularly from the differences in pressure, but the disturbances can be warded off if the men in going up practice Valsalva's experiment, strong expiratory effort with mouth and nose closed, and in descending practice Toynbee's experiment, exhausting the air from the tympanic cavity by swallowing with the nose and mouth closed. See also Paris Letter, Aug. 24, 1918, p. 679.

42. **Resumption of Self-Support by War Cripples.**—Gourdon is chief of a rehabilitation center, and reports his experience with 5,014 maimed soldiers with grave and incurable lesions. Of these, 73 per cent. have resumed their former occupation with or without prostheses; 27 per cent. required vocational training. Only 30 per cent. were crippled in the arms. War cripples seem to lack will power more than others, and they tire more readily. Persons accustomed to till the soil formed 62 per cent. of the total, and they return to farm work more readily than others. Fully 85 per cent. of the farmers and 48 per cent. of the farm hands spontaneously returned to farm work after being supplied with prostheses for the purpose. The loss of an arm does not incapacitate more than 25 per cent., and disarticulation of the shoulder more than 50 per cent. Amputation at the thigh causes about 50 per cent. incapacity. The incapacity from loss of a leg is not over 10 per cent. in industrial work. With loss of a hand or arm, the amount of work turned out increases of course with practice, and hence it is advisable to place the men early in workshops. Very good office positions have been found for the maimed capable of such work, and their interest and progress in training were remarkable. They realized in nine months what the others required sixteen for. He advises a premium for rapid acquiring of skill based on the professional skill acquired compared to the extent of the lesion.

43. **Pulmonary Spirochetosis.**—Barbary remarks that it is only comparatively recently that the mycoses have been differentiated and successful treatment applied. Before this the cases had been labeled syphilis or tuberculosis, and all treatment on this basis had been futile. Spirochetoses are now having this same experience. Many cases of supposed pulmonary tuberculosis are probably a spirochetosis. A number of such have been encountered at the observation station in his charge. In one case the diagnosis had been "chronic bronchitis, probably tuberculous, with hemoptysis." Spirochetes were found swarming in the sputum. No examination should be considered complete unless, along with the bacteriologic examination, the sputum, urine and blood are examined for spirochetes. They show up readily with blue or phenolthionin. Isolation is imperative, as this spirochetosis is extremely contagious both by direct contact and by the dried sputum. The cuspidors should be kept half full of an antiseptic fluid, and the mouth should be rinsed with hydrogen peroxid or chloral.

Nourrisson, Paris

July, 1918, **6**, No. 4

44 *Prophylaxis of "Children's Diseases." A. B. Marfan.—p. 193.
45 Ventilation of Contagious Ward. J. Renault.—p. 212.
46 *Meningococcus Meningitis in Infants. M. Lavergne.—p. 215.

44. **Prophylaxis of Acute Contagious Diseases.**—Marfan reiterates that isolation is the basis of prophylaxis for acute infectious diseases of children, including the eruptive diseases, whooping cough, mumps and cerebrospinal meningitis. He discusses the technic for prophylaxis of each of these in turn, emphasizing in particular the special measures required in measles. He adds that even if we only get measles postponed till after the age of 5 or 6, this would suppress the mortality almost completely. When there has been exposure to measles, the child can be left unmolested for ten days thereafter, during the phase of incubation. The tenth day the child should be isolated and watched for signs of measles. If no symptoms develop, the isolation can be arrested in five days, that is, the fifteenth day after the exposure to the disease. Not merely the doubtful but also the suspected cases of exposure should be managed in this way. If a child develops a "cold" and shows slight signs of malaise—when cases of measles are known in town—he should be isolated at once for five days. If no eruption appears, he can then be released. Every child with an eruption and fever should be isolated for two or three days. In case of measles, the isola-

tion need not be kept up for more than five days unless there is concomitant pneumococcus or streptococcus infection, in which case isolation for this is required in addition. Terminal disinfection is not required in measles except for a complicating pneumonia. When an epidemic of measles breaks out in a school, the children should not be given a vacation; this would help to spread the disease. All that is necessary is to isolate the sick, the suspects and the doubtful cases, and keep the others under surveillance. The regulations in France exclude a child from school for sixteen days after the beginning of the eruption. This is not necessary unless there are complications. For twenty-five years the physicians of children's hospitals have been pleading to have the services organized, both in the hospitals and in the dispensaries, to avoid propagation of acute contagious diseases.

46. **Meningitis in Infants.**—In the course of this discussion of the etiology, symptoms, diagnosis and treatment of meningococcus meningitis in infants, Lavergne remarks that lumbar puncture in an infant is simple and absolutely harmless. The child should be placed on its side, one hand bending the head back so far as possible; the other hand, placed behind the knees, presses the thighs against the abdomen. If no fluid drips from the needle introduced into the subarachnoid space, he slips a guide into the needle. If this fails, he repeats the puncture in the interspaces above, which can be done in infants up to the tenth and eleventh dorsal vertebrae. He advises to withdraw as much of the cerebrospinal fluid as possible; the results can be only good, as this relieves the centers from compression, gets rid of toxic fluid, and leaves room for the curative serotherapy. From 20 to 40 c.c. of fluid can generally be withdrawn in this way.

The first antiserum, he declares, should be polyvalent. The method of rapid agglutination will disclose the special type involved so that the specific antiserum can be injected the next day. There can be no inconvenience in injecting 20, 30 or even 40 c.c. of the antiserum. On the other hand, there is grave danger if an adequate amount of the antiserum is not given. The injections should be repeated as long as the cerebrospinal fluid shows meningococci and polynuclear cells. It should also be the routine practice to repeat the lumbar puncture from four to eight days after apparent recovery. This is the only means to detect an incipient recurrence. If the child's condition is very serious, Lavergne advocates injecting the antiserum directly into the ventricle, even when there is nothing to indicate walling off of the meningitis. He asserts that there is no danger, introducing the needle at the lateral angle of the fontanel and pushing it downward and inward, the tip pointing toward the external auditory meatus on the other side. The sedative influence of hot baths may be utilized. In case of complicating joint or iris trouble, the antiserum must be injected locally. Injection of the antiserum directly into the vitreous body has been followed by complete retrogression of iridochoroiditis. As early treatment here is of prime importance, ophthalmoscopic examination should be a routine measure with meningitis in infants. Serotherapy shows more failures in infants than in older children and in adults. Even in the apparently favorable cases in infants the diagnosis should be reserved. Some have reported good results from a fixation abscess or vaccine therapy. Those who fear anaphylaxis can certainly ward it off by giving a small injection of the antiserum every week.

Paris Médical

May 25, 1918, **8**, No. 21

47 *Clinostatic Bradycardia. H. Vincent.—p. 401.
48 *Crippling Attitudes after War Wounds. André-Thomas.—p. 402.
49 *Prophylaxis of Tuberculosis in Italian Army. N. Sforza.—p. 406.
50 Sodium Cacodylate Cannot Take the Place of Arsphenamin, etc., in Treatment of Syphilis. H. Maréchal.—p. 410.
51 Roentgen Localization of Projectile. Loupié.—p. 413.

47. **Combination of Bradycardia, Low Blood Pressure and Cyanosis of Hands and Feet.**—This combination Vincent has encountered comparatively frequently in children and young people. The bradycardia is of what he calls the clinostatic type, that is, instead of the normal drop of 8 or 9 beats when the subject reclines after standing, the drop is of 15, 25 or 30 beats, so that the pulse recumbent is only 58, 52 or 40. The arterial pressure is also extremely low, and the hands and feet are cold and clammy and inclined to be blue. In twenty-nine such cases there was a history of rheumatism, hereditary or personal. This peculiar triad of symptoms disappeared after marriage or pregnancy or as the active genital period was reached, and this suggested that endocrine disturbances might be responsible. This assumption was sustained by finding the thyroid abnormally small; sometimes, one lobe seemed to be almost completely missing, or the whole gland felt soft and flabby. Thyroid treatment promptly restored conditions to clinically normal. He supplemented the thyroid extract with potassium iodid and, in case of girls, with ovarian treatment.

48. **Abnormal Attitudes from Defective Regeneration of Nerve.**—The abnormal attitude or contracture may develop at once after a war wound of the nerve or not until after several months. In the latter case there is evidently defective regeneration of the nerve, the fibers going astray. Two cases are described to show the multiple factors that may be involved, and that must be guarded against or eradicated.

49. **Prophylaxis of Tuberculosis in the Italian Army.**—Sforza has charge of the *centre diagnostique de la tuberculose* at Rome. He relates that the call to arms poured the entire male tuberculosis morbidity of the whole country into the army. This led to two mistaken conceptions, namely, that tuberculosis was rapidly increasing, and that this increase was due to the war. Time and experience have refuted both of these apprehensions, especially the experiences at the diagnosis centers which were organized in January, 1917, for each army corps. Here the advanced cases are sifted out and turned over to the civil authorities. The curable cases are sent to army sanatoriums for a six months' course of treatment. By means of these diagnosis centers, tuberculosis can be detected in its incipiency and the proper treatment be applied immediately. "The best prophylaxis of tuberculosis is the early diagnosis of the disease . . ." The fact that the men dismissed from the army on account of advanced tuberculosis are passed over individually to the civilian authorities has placed Italy in the forefront of all nations as regards compulsory notification of tuberculosis. To have accomplished so quietly such a tremendous reform in the campaign against tuberculosis is not the least of the benefits to be credited to the military authorities in this field of action. The civil government has only to keep on with the task."

Legislation is now pending to provide a pension for every soldier discharged on account of tuberculosis, who has taken part in the fighting. The plan is to have the pension revised from time to time by competent authorities to conform to the man's condition, increasing it if necessary, reducing it if conditions improve. The diagnosis center at Rome is a regular hospital with 170 beds. The men are under observation there from ten to fifteen days, and the roentgen record of each individual is kept in the archives. There are already 450,000 radiographic records of the kind, a valuable material for specialized study, such as no other institute that he knows of possesses to date. It embraces the whole history of pulmonary tuberculosis. These diagnosis centers are to be maintained after the war, although several centers may be merged into one, and they will include civilians in their scope.

Presse Médicale, Paris

June 27, 1918, **26**, No. 36

52 *Wounds of Cervical Sympathetic. André-Thomas.—p. 329.
53 *Provisional Prostheses after Amputation. G. Louvard.—p. 331.
54 Quinin Collobiase in Malaria. F. Roux.—p. 333.

July 8, 1918, **26**, No. 38

55 *Study of Heart Disease. H. Vaquez.—p. 345.
56 *Tracheocele. P. Coudray and Guisez.—p. 348.
57 *Reflex Symptoms in Epilepsy. M. Olivier and G. Aymès.—p. 349.
58 *Meningococci and Parameningococci. Romme.—p. 350.

52. **Wound of Inferior Cervical Ganglion.**—Thomas reports the findings on vasomotor, thermic and circulatory tests in cases of injury of the sympathetic nerve in or near the inferior cervical ganglion.

53. **The Provisional Prosthesis.**—Louvard expatiates on the advantages of providing a peg leg or arm hook from the earliest possible moment, on account of the moral as well as the

physiologic effect. It also avoids the use of the "pernicious crutch," and provides the orthopedist with a live, healthy stump to work on.

55. **The Heart.**—Vaquez calls his article an introduction to the study of the heart. He traces through the ages the development of our knowledge in regard to the physiology and pathology of the heart. When digitalis has been successful for a time and then fails, although the clinical picture seems unmodified, some new factor has evidently intervened, and this, he says, is probably the loss of the tonicity of the myocardium. Physiologically speaking, we know that digitalis is not actually a tonic for the heart as is generally believed. In this case we must use some stronger tonic for the heart. This action is possessed by strophanthus to a notable degree. This carries on the task where and when digitalis fails.

56. **Tracheocele.**—Coudray and Guisez give an illustrated description of a case of tracheocele. Three of the rings of the trachea had ruptured during a shell explosion. The soft depressible tumor looks like a goiter, but there is no resistance to the finger at this point. The ordinary acts of life are done without trouble, but there is intolerable pain at any more intense effort. The man has become accustomed to the lesion in the seventeen months since the explosion, and declines operative intervention. The hernia might spontaneously retrogress if the trachea were to be incised below to divert the circulation of the air. The prognosis of tracheocele is grave, as a rule, aside from the tracheoceles of pregnancy which usually retrogress spontaneously. Any intercurrent bronchitis or catarrhal trouble might aggravate conditions.

57. **Reflex Symptoms with Epilepsy.**—Olivier and Aymès report a case in which during the epileptic seizure the Babinski toe sign was pronounced on the right side, while in the left foot there was no Babinski but in its place there was adduction of the foot, the inner margin being raised. Stimuli applied to the soles of the feet during the seizure elicited constantly these motor responses. A theory is advanced to explain the mechanism of these phenomena.

58. **Serotherapy of Meningitis.**—Romme emphasizes the necessity for beginning treatment with a bivalent antiserum that acts on the two most common strains. If bacteriologic differentiation is possible—which is generally the case in forty-eight hours—then an antiserum addressed to the "reigning meningococcus" should be used. Otherwise the bivalent should be continued.

Correspondenz-Blatt für Schweizer Aerzte, Basel

June 22, 1918, **48**, No. 25

59 *War Psychoneuroses. F. Naville.—p. 817.
60 *Cancer Statistics. J. Aebly.—p. 829.

59. **War Psychoneuroses.**—Naville describes his experience with inveterate cases of psychoneuroses at an advanced neuropsychiatric center. He emphasizes the close resemblance between neuroses and psychoneuroses due to exhaustion and emotional stress and those for which organic disease or intoxication is responsible.

60. **Fallacies in Cancer Statistics.**—Aebly comments on the superior oversight to be obtained when the course of cancer cases, from the beginning of disturbances to death, is compared in the operative cases and in those left to a spontaneous course. Still better oversight is realized when, in addition, the figures are compared with those of the relative life expectancy for the age. Surprising findings are obtained in this way. The advantage in favor of the cases with operation does not become manifest until from the fourth year onward, so far as cancer of the uterine cervix is concerned. Up to this period the operative cases show no longer survival than the cases with a spontaneous course—all estimated from the first symptoms of the malignant disease. Aebly remarks that so long as it is impossible to demonstrate any absolute lengthening of the period of survival in consequence of the operation, we have no right to affirm the life-preserving influence of operative measures. In the most favorable circumstances it is only a question of shifting the values. If a surgeon believes that it is better to sacrifice a whole series of women so that a very few may live a little longer, that is his lookout. It is a matter of opinion. Dividing the years of survival after the first manifestations by the life expectancy for the age, we obtain a quotient which permits comparison between the operative and the nonoperative cases. Recent literature on statistical lore with reference to cancer is analyzed, especially Müller's report on 125 cases of cancer of the cervix. The survival from the beginning of disturbances was much longer in the nonoperative cases; 100 per cent. of the latter were living after nine months and only 67 per cent. of the operative cases; at one year the figures were 67 and 57; at fifteen months 57 and 44; at two and a half years, 24 and 21; at three years, 19 and 15; at five years, 5 and 6. None of the inoperable cases survived beyond the fourth year, but 4 of the operative cases lived to the sixth and 3 to the seventh year.

Gazzetta degli Ospedali e delle Cliniche, Milan

May 26, 1918, **39**, No. 42

61 *Abdominal Wounds in War. F. Benoni.—p. 413.

May 30, 1918, **39**, No. 43

62 *Mercury Protects against Malaria. G. Cremonese.—p. 427.

June 2, 1918, **39**, No. 44

63 *Abdominal Wounds in War. E. Santoro.—p. 433.

61. **Abdominal Wounds.**—Benoni reports seven recoveries in eleven cases of abdominal wounds. The recoveries included one case in which the liver had been injured, one the large and one the small intestine, both in two, and one in which the wound involved both abdomen and thorax. One of the men came to the station on foot holding in his hands the lacerated abdominal walls and clamoring for an operation. This confidence in the surgeon's skill proved an important factor in the recovery in many cases. This was particularly evident in the case of a man with lacerations in the small intestine and the colon, from a shell wound eight hours before. Except for slight transient fever and tormenting thirst, recovery was uneventful. Benoni did not seek to remove the projectiles unless they were readily accessible, estimating that they would soon become encapsulated. In some of the cases with recovery the intestines showed that the men had eaten recently. In two other cases the aspect was that of injury of viscera but no lacerations could be found and recovery was soon complete. The chances of a favorable outcome grow rapidly less after the sixth or seventh hour from the wound. When the pulse is over 120, the outlook is grave, but it had reached 126 in some of his cases with recovery.

62. **Mercury Protects Against Malaria.**—Cremonese asserts that he knows of no instance of malaria being contracted by a man who has been taking thorough mercurial treatment for syphilis within a year. This has convinced him that saturation with mercury protects against malaria and cures it, once installed. By subcutaneous injection of mercuric chlorid he has succeeded invariably in curing rebelliously recurring malaria. His curative injections were with 4 c.c. of a 0.25 per cent. solution, that is, 0.01 gm. mercuric chlorid daily for ten days. Another series of ten injections is given after an interval of ten or fifteen days. This completes the immunization. In ordinary cases he gave the mercury by the mouth, 0.01 gm. for ten days for adults, and half this for children under 6. This is followed after an interval of ten days by another similar series to complete the immunization.

63. **False Abdominal Wounds.**—Santoro applies this term to wounds of the abdomen without laceration of viscera. In 101 of his 137 abdominal cases only the abdominal walls were injured. In the others some extraperitoneal organ was injured. He discusses the misleading clinical picture, as everything seems to indicate injury of the bowel. Shock is frequent even when merely the abdominal wall is injured, and there may be anemia from excessive hemorrhage. This clinical picture of the *"falsi addominali"* may be presented even with merely a wound of the thorax, not involving the diaphragm. Roentgen examination may prove misleading, as the path followed by the projectile may have been long and tortuous, so that an exploratory laparotomy may be the only resource.

Policlinico, Rome

June 30, 1918, **25**, No. 26

64 *Three-Day Fever. F. De Napoli.—p. 605. .
65 Crippling of Foot after Slight Wound of Leg. F. Purpura.—p. 608.

July 7, 1918, **25**, No. 27

66 *Traumatic Paralysis without Organic Injury of Spinal Cord. P. Timpano.—p. 629.
67 *Early Suture for Factitious Abscesses. S. Menghetti and G. Aquilanti.—p. 632.
68 *Reapers' Keratitis. L. Alajmo.—p. 633.

64. **Three-Day Fever and Trench Fever.**—De Napoli presents arguments to sustain the view that trench fever and a febrile disease now widely prevalent in Italy are the same as the *febbre estive* or *febbre da pappataci*, three-day fever, sand-fly fever, barracks fever, drouth fever, malarial influenza —all these names having been applied to a sudden fever with headache, pains in muscles, joints and spine, usually accompanied by gastro-intestinal derangement, with complete subsidence of the fever the third day, but leaving pronounced asthenia for about a month. He refers to his previous publications on this three-day fever, which early attracted attention in military circles as troops in barracks were mainly affected, the first communication on the subject in Italy dating from 1888. De Napoli suggests that lice may be the hosts as well as sand flies, the more common transmitters of the disease. (A Lisbon exchange has recently presented similar arguments in favor of the like nature of the disease which has been epidemic in Spain, the so-called Spanish influenza, which has been prevalent also recently in Portugal.)

66. **Paralysis Without Organic Injury of Spinal Cord.**—Timpano refers to a case of crossed traumatic paralysis following a small shell wound of the back of the chest at some distance from the spine.

67. **Early Suture for Factitious Abscesses.**—Menghetti and Aquilanti are in charge of the service for the "surgical autolesioned," and they comment on the peculiarly protracted course of the abscesses and phlegmons which follow injection of benzin and gasoline for malingering purposes. There is great destruction of tissues but the lesion is practically sterile. They have shortened the course of healing materially by clearing it out and suturing it at once without draining. The stitches are removed the sixth or seventh day, the healing occurring by what might be called secondary primary intention. This shortens the course by months.

68. **Reapers' Keratitis.**—Alajmo warns that if soldiers are detailed to help in harvesting crops, any injury of the eyes from the work, such as reapers' keratitis, must be regarded as acquired in the service.

Riforma Medica, Naples

June 22, 1918, **34**, No. 25

69 *Finer Structure of Neuroglia. E. Rossi.—p. 482.
70 *The Small Heart of the Tuberculous. C. Guarini.—p. 485.

June 29, 1918, **34**, No. 26

71 *Interchange of University Professors between England and Italy. L. Bianchi.—p. 501.
72 Aneurysm of Aorta; Six Cases. O. D'Allocco.—p. 503.
73 Successful Removal of Sarcoma of Tonsil. A. Ajello.—p. 506.
74 Roentgen Findings with Pulmonary Tuberculosis. L. Coleschi. —p. 510.
75 Principles for Treatment of War Wounds of Bladder and Urethra. E. Aievoli.—p. 513.

69. **The Finer Structure of the Neuroglia.**—Rossi has found by Achúcarro's method of staining that the gliosomes and the glial fibrils seem to be always in inverse proportion to each other. This and certain other findings have convinced him that the fibrils of the neuroglia are derived from the glial plasma. His microscopic findings are to be illustrated in the detailed report of his research soon to appear in the *Revista italiana di Neuropatologia.*

70. **The Small Heart of the Tuberculous.**—Guarini has been constantly impressed in roentgen examination of tuberculosis suspects with the extreme frequency of small-sized hearts, and with their median location. The arch of the aorta was also relatively small with this hypoplasia of the heart in the 1,300 tuberculous soldiers he has examined with the roentgen rays. The heart was of the "drop" type in 13 per cent. tuber- Guarini suggests the possibility that infection with the cle bacillus may have been the cause of the hypoplasia of the heart, instead of the usual assumption that the small heart is what predisposes to tuberculosis. Roentgen examination of persons with this small vertical heart has always revealed tuberculous lesions in the lungs, even when there was nothing otherwise to suggest tuberculosis. The heart was of this small, median type in 68 per cent. of the 1,300 tuberculous men he has examined. His experience showed further that an angle of slant of from 25 to 55 degrees must be regarded as further evidence of hypoplasia in persons infected with tuberculosis. The "drop" heart has a similar significance.

71. **Progress of Science in Italy.**—Bianchi relates how Italy is waking to the knowledge that German science has been for years crushing out initiative and progress in Italy. Germans were given professorships, German scientific works flooded the country, and the authorities deferred to German influence with no encouragement for Italian science. Foreigners were incumbents even of the chairs of ancient history in certain Italian universities, and in their teachings belittled the achievements of the Latin races. The war has opened the eyes of Italy to this exploitation of the country by German science. To further the throwing off of the German yoke in science, the Board of Education in Great Britain recently invited representatives of the Italian universities to visit the English universities, and Bianchi's communication is a report of the trip. He emphasizes in particular the all-around training of the British university students, the close and constant relations between professors and students. When the students graduate, their minds are comparatively mature, and they are prepared not only for the practice of their profession but for citizenship as well. An interchange of lecturers and students is planned, and the study of English has already been introduced into some of the preparatory and professional schools in Italy.

Rivista di Clinica Pediatrica, Florence

May, 1918, **16**, No. 5

76 *Suprarenal Treatment of Children. A. Galvani.—p. 225.
77 *Tremor in Children. L. Sironi.—p. 238.
78 Welfare Work for Children and Nursing Mothers during the War. .C. Comba.—p. 266.

76. **Epinephrin in Treatment of Children.**—Galvani remarks that the soft and elastic arteries in children and the integrity of the cardiovascular and other systems render epinephrin peculiarly effectual in pediatrics. It seems to have a general tonic and an antitoxic action as well as its direct vasoconstricting effect. He reviews the indications for it, as published by various writers, with their experience in different diseases and the doses used. Except in very urgent conditions, administration by the mouth is preferable. This is harmless while it avoids abrupt changes in the circulation. Its action is more protracted by the mouth, and it seems to stimulate the centers, possibly by way of the sympathetic system. The dose is from 10 to 30 drops of the 1 per thousand solution. When especially prompt action is necessary, it can be injected subcutaneously, from 0.5 to 1 c.c. Certain features of the action of epinephrin are still undecided, as, for instance, its effect on the musculature of the intestines. Lesné reported in 1912 that, injected into the rectum of rabbits, the animals died, but not so rapidly as when the same dose was injected subcutaneously. The same dose introduced into the stomach or small intestine seemed entirely harmless.

77. **Tremor in Children.**—Tremor as an isolated or predominant symptom of nervous disease in a child is very rare. Seroni states that only three cases were encountered among the thousands of children at the Rome children's dispensary, 1889 to 1915, and fifteen cases in the Naples children's clinic. He classifies tremors as physiologic or transient, result of organic nervous disease, of neuroses, hereditary, toxic or toxic-infectious, and occupational, and describes the special features of each. He gives the details of a typical case of continuous tremor in a breast-fed female infant of 14 months, affecting the limbs, trunk and head, sparing only the muscles of the face. The father was addicted to alcohol and the child had had gastro-intestinal disturbance and measles. The lumbar puncture fluid showed signs of a slight acute meningeal reaction, probably traceable to the intestinal disturbance and the general debility from the inherited taint. Lumbar

puncture in such a case has direct therapeutic value. In Cantieri's case, malaria was evidently responsible for the tremor. In older children tremor may develop on a basis of hysteria, usually after some fright or anger. Among the toxic tremors, the alcoholic is the most common, but he reports a case in which thyroid treatment was responsible for it. In conclusion he describes a case of tremor in a girl of 14 which has persisted for two years, without much improvement, rebellious to hospital or other treatment. The tremor affected only the legs, and was more of a clonic nature than true tremor, but the rhythmic coordinated movements seemed to exclude chorea, suggesting rather paramyoclonus. This diagnosis is sustained by the headaches and dizziness at times.

Rivista Critica di Clinica Medica, Florence

June 13, 1918, **19**, No. 28

79 *Nocturnal Asthma. C. Frugoni and S. Pisani.—p. 325. Commenced in No. 25, p. 289.

79. **Nocturnal Asthma.**—Frugoni and Pisani report the metabolic findings and results of various functional tests in fourteen persons with asthma, essential or secondary, and in two healthy persons. They were examined in twelve-hour periods, all after a similar test meal. The findings confirm the empiric assumptions as to the difference between the metabolism during the day and during the night. In the nine cases of asthma secondary to kidney disease, the findings testified to the marked impairment of the eliminatory functions during the night hours, the urea and the viscosity of the blood increasing, as also retention of chlorids in the tissues, while the cholesterol content of the blood drops.

Annaes Paulistas de Medicina e Cirurgia, S. Paulo

November, 1917, **8**, No. 11

80 *Multiple Intra-Uterine Fractures. R. Puech.—p. 245.

80. **Intra-Uterine Fractures.**—In the case described the child screamed incessantly after its spontaneous birth, and palpation and radiograms confirmed the fractures of all the long bones, clavicles and ribs. On lifting the child it felt like a bag of cloth filled with pieces of glass. The fractures were easily reduced and held in place with cardboard splints. Roentgenography the tenth day showed consolidation of nearly all the fractures, with callus, and no crepitation could be felt anywhere. A few weeks later green diarrhea developed and the child died in two weeks. The parents and three other children are healthy. Whatever may be the explanation of these multiple fractures, a tendency to rachitis evidently cooperates.

Archivos Españoles de Enf. del Ap. Digestivo, Madrid

May, 1918, **1**, No. 5

81 *Gallstone Empyema of Gallbladder. G. del Real.—p. 195.
82 Roentgen Examination of Stomach. Julian and S. Ratera.—p. 199.
83 *Habitual Constipation. V. de Castro.—p. 212.
84 Physiotherapy of Gastric Ulcer. S. Carro.—p. 214.

81. **Empyema of Gallbladder.**—The special features of the case described in a man of 56, a teacher, were that he had always been in excellent health, free from pains and tendency to jaundice, when suddenly he developed intermittent fever for a month, with two chills. The fever then subsided but left lassitude and a feeling of oppression in the right abdomen, explained when a fistula developed and large numbers of gallstones and pus were evacuated. There had never been the slightest symptom from the cholelithiasis or reflex disturbance before. The treatment has been expectant to date, based on the fear of adhesions and the usual tendency to spontaneous healing.

83. See Abstract 112 below.

Boletin de la Asociacion Medica, Porto Rico

June, 1918, **14**, No. 119

85 Aerotherapy in Whooping Cough. F. del V. Atiles.—p. 218.
86 Leprosy. M. M. Rosello.—p. 220.
87 *Obstetric Lacerations. J. S. Belaval.—p. 230.
88 *Plastic Operation on Urethra. M. Janer.—p. 234.
89 *Prophylaxis of Dengue. L. Figueroa.—p. 235.

87. **Obstetric Lacerations.**—Belaval remarks that about 60 per cent. of the parturients in Porto Rico suffer from lacerations during childbirth. In many of these cases the carelessness or ignorance of the midwives is responsible. He protests parenthetically against allowing untrained midwives to deliver women. The laws are exceptionally lenient for midwives, not exacting preliminary training, as with nurses. These untrained midwives know scarcely the rudiments of asepsis and antisepsis, and they are incapable of recognizing the serious complications of childbirth, or if they recognize them, they conceal them from the family, fearing that they will be blamed.

The birth canal should be carefully investigated for lacerations, and they should be sutured at once, he declares, while waiting for the expulsion of the after-birth. He sutures the tissues at points where this can be done without interfering with the third stage of labor, and takes stitches at the other points but leaves the ends hanging loose until the third stage is completed. Then he draws up the threads and ties them after expulsion of the after-birth. Catgut chromicized for twenty days usually holds long enough for healing in the deeper sutures. Silkworm gut is better for the outer sutures. The obstetrician should always go prepared for suture of the perineum.

88. **Urethroplasty.**—In a case of gonorrheal stenosis of the urethra, with extensive loss of substance from the gangrene entailed by the three days' retention of urine above the stricture, Janer repaired the 2-inch gap in the urethra with the scrotal septum. The catheter was left in place for two weeks, and the urethral passage was restored to approximately normal, the man urinating freely and without effort for the first time in eight years.

89. **Prophylaxis of Dengue.**—Figueroa mentions that epidemics of dengue have been known to die out when mosquitoes were excluded from the homes affected. He adds that the disease is not known in the mountains.

Brazil-Medico, Rio de Janeiro

Jan. 5, 1918, **32**, No. 1

90 Cadaveric Fauna: Brazilian Ants. O. Freire.—p. 1.

June 15, 1918, **32**, No. 24

91 Research on Brazilian Mycoses. O. Magalhães.—p. 185.

Medicina Ibera, Madrid

May 11, 1918, **3**, No. 27

92 *Popliteal Aneurysm. J. Blanc.—p. 158.
93 Iodin in Therapeutics. III. A. S. Alvarez.—p. 160.
94 *Early Syphilitic Meningitis. M. F. Criado.—p. 162.

May 18, 1918, **3**, No. 28

95 *Management of Heart Insufficiency. S. A. Echevarria.—p. 187.
96 Hypnotism in Hysteria. J. C. Galicia.—p. 189.

92. **Popliteal Aneurysm.**—Blanc excised the stretch of the vein involved as the aneurysm was inflamed. Smooth recovery followed although no attempt was made to suture the stumps, Nature having already provided for the circulation by this time.

94. **Early Fatal Syphilitic Meningitis.**—The patient was a widow of 36 and—from fear of disgrace—no treatment had been taken for the syphilis contracted a year before. Then meningitis developed, speedily fatal. Intense and persisting headache, worse at night, was the first symptom. The case resembled the meningitis of inherited syphilis more than the usual acquired meningitis.

95. **Heart Weakness.**—Echevarria discusses the management of attacks of cardiac insufficiency. He reiterates that his experience has amply confirmed the advantages of chronic and intermittent administration of digitalis in small doses in cases displaying a tendency to recurring attacks of cardiac insufficiency, either from the nature of the heart disease or extraneous circumstances liable to bring on attacks.

Prensa Medica Argentina, Buenos Aires

May 20, 1916, **4**, No. 35

97 *Mouth Breathing as Factor in Tuberculosis. E. V. Segura.—p. 515. J. J. Viton.—p. 517.
98 *Nystagmography. R. Argañaraz.—p. 518.
99 *Tuberculous Abscess in Thorax. N. Tagliavacche.—p. 526.
100 Ideals for Teaching Obstetrics. Liberatio.—p. 528. Conclusion.

97. **Inadequate Nose Breathing as Factor in Tuberculosis.**—Segura expatiates on the predisposing influence to tuberculosis of inadequate respiration through the nose. He regards this as one of the principal causes favoring the development of tuberculosis. He tabulates the findings in this respect in 500 tuberculous persons; fully 45 per cent. had more or less obstruction in the nose impeding normal nose breathing. The proportion was 98 per cent. among 19 boys under 13 and 50 per cent. in 20 girls. In the total 245 males. 38 per cent. were unable to breathe freely through the nose. and 48 per cent. of 255 female tuberculous. He gives figures also showing the improvement in the blood picture after the nose had been rendered freely permeable. Physicians in neral and especially medical school inspectors should be the alert to detect and correct inadequate nose breathing.

7. **Importance of Permeability of the Nose in Treatment of Pulmonary Tuberculosis.**—Viton reenforces Segura's plea for unobstructed nose breathing as an important element in warding off and curing tuberculosis. He ascribes great causal importance to the breathing into the lungs of dust and dirt in mouth breathing, in addition to the deficient oxygenation of the blood, and the lack of the humidifying action of the nose on the inspired air. The fact that the right apex is more frequently affected testifies further to the injury from the unmodified air. In 81.5 per cent. of his male tuberculous hospital patients and in 81.3 per cent. of the female, the tuberculous lesions were on the right side. He suggests the possibility that tuberculosis may be the primal cause of adenoids, and they set up a vicious circle. The adenoids may be a distant manifestation of latent or disguised tuberculosis in glands or viscera, or other infections or chronic intoxication may be responsible for the development of the adenoids.

98. **Recording the Movements of Nystagmus.**—Argañaraz' comprehensive study of the different forms of nystagmus is illustrated, including his description of his modification of Buys' nystagmograph; the movements of each eye are recorded separately on a moving drum. He describes other methods of recording the nystagmic movements, with experiments on rabbits, specifying the different forms of nystagmus, and citing considerable literature on the subject.

99. **Tuberculous Abscesses in the Ribs and Costal Cartilages.**—Tagliavacche reports two cases of a tuberculous lesion in a rib or costal cartilage or both. It was removed by Mercade's technic in each case, apparently eradicating the tuberculosis.

Repertorio de Medicina y Cirugia, Bogota

March, 1918, **9**, No. 6

101 *Cancer of the Jaw in Colombia. P. Martinez.—p. 289.
102 Nitrous Oxid Anesthesia. J. Lopez.—p. 323.

May, 1918, **9**, No. 8

103 Salvarsanized Serum in Syphilis. J. I. Uribe.—p. 407.
104 *Case of Intermittent Paraplegia. C. Torres.—p. 416.
105 Amebic Colitis and Dysentery. C. J. Lezaca.—p. 440.

101. **Malignant Tumors of the Jaws.**—The twenty-eight illustrations accompanying Martinez' article show a remarkable series of cancers of the jaws and cheek. Malignant disease, he states, is common in Colombia, and the cancer is too far advanced for operative measures, as a rule, when the surgeon is consulted. Even if an operation is attempted for these advanced cancers of the jaw, recurrence is frequent. With malignant disease of the jaw, possibly more than elsewhere, successful treatment depends on an early diagnosis, and physicians should be on the alert to detect tumors of this kind in their incipiency. He reports apparently complete cures in some cases of sarcomatous epulis in which he resected the alveolar edge of the jaw after removal of the tumor. In a case of fibrous epulis in a woman of 40, cauterization of the site after removal of the tumor seemed to answer the purpose sufficiently. In his jaw sarcoma cases were two boys of 9 and 11 and a babe of 4 months. The lower jaw is affected more often than the upper jaw. The boy of 11 seems to be cured during the months since removal of a large sarcoma on the upper jaw. One man's chondromyxosarcoma extended from orbit to neck and was as large as his own head. The entire left half of the lower jaw was resected with the tumor. Recurrence of a malignant tumor in the jaw generally occurs at the original site, confirming the necessity for extensive resection. One of the illustrations shows a case of actinomycosis simulating a large tumor of the upper jaw in a child. The carcinoma patients were all older than the sarcoma cases. With cancer in the antrum, pain is long the only symptom, no signs of a tumor being apparent, but when it breaks through the walls, progress is rapid. The outlook is graver with carcinoma than with sarcoma; a history of traumatism is more often encountered with the latter.

104. **Intermittent Paraplegia.**—Torres' patient is a boy of 10 who has sudden attacks of paraplegia lasting from a few minutes to three hours and a half. The child falls as his legs give way, but he has no headache. He has no pathologic antecedents except pneumonia several years before, followed by bilateral otitis media and symptoms of meningism that subsided after lumbar puncture. There is nothing to suggest hysteria or a spinal cord affection. The skin tuberculin test is positive, and by exclusion Torres accepts as the presumptive diagnosis a tuberculoma or other tuberculous lesion as responsible for the pressure inducing the intermittent paraplegia. The boy is intelligent and in good physical condition otherwise. The treatment advised is absolute rest for the brain with sun baths and food rich in animal proteins, and tonics.

Revista Medico-Cirurgica do Brazil, Rio de Janeiro

February, 1918, **26**, No. 2

106 *The Anti-Hookworm Campaign. C. Seidl.—p. 45. L. Hackett. —p. 52.
107 Mosquitoes and the Public Health. M. de Abreu.—p. 58.

April, 1918, **26**, No. 4

108 Linear Dermatitis. O. de O. Chaves.—p. 141.
109 *Venereal Disease in Brazil. C. Seidl.—p. 151.
110 Tropical Dysentery. E. Gomes.—p. 157.
111 Criminal Abortions. F. Magalhães and O. da Fonseca.—p. 161.

106. **The Hookworm Campaign.**—The addresses are given that were presented at the inauguration of the work of the Rockefeller Foundation in Brazil.

109. **Venereal Disease in Brazil.**—This article is the address made by Seidl at the International Public Health Conference held at Paris in 1914. His figures show that the direct mortality from syphilis at Rio had increased from 7.99 to 20.31 per hundred thousand inhabitants in the preceding twenty years.

Revista de Medicina y Cirugia Practicas, Madrid

June 7, 1918, **120**, No. 1509

112 *Habitual Constipation. S. V. De Castro.—p. 257.
113 Tonsillitis during Menstruation. A. M. Calderin.—p. 259.

June 14, 1918, **120**, No. 1510

114 Suppuration with Fecal Fistula Ten Years after Buried Wire Suture. Slocker.—p. 289.
115 *Typhus in Oporto. A. Barradas.—p. 298.

112. **Constipation.**—De Castro insists that each digestion is intended to be accompanied by defecation, so that a single passage a day indicates in itself a certain amount of paresis of the bowel and some autointoxication. "A glass of cold water sipped as the sun is rising utilizes the reflexes—including the peristaltic movements of the bowels—which the rising of the sun induces in the healthy organism." He advises setting an alarm clock to wake one in time for the sunrise, to take advantage of this moment of positive sideral influence. Habitual constipation can usually be cured in a month when the diet is restricted mainly to vegetables and fruits, with little to cause toxic action. "Paraffin and similar preparations have only a palliative action, and it is preposterous to think of taking them all the rest of one's life."

115. **Typhus in Portugal.**—Barradas remarks that there have been no cases of typhus among Portuguese soldiers in France or in Africa. The mortality in the recent epidemic at Oporto was low, only 6 per cent., and the fatal cases were mostly in the elderly. Only one of the children affected died. But seven contracted the disease of the twenty-five persons connected with the public health service, and one died. Two physicians were also affected. The symptoms on the part of the heart predominated in the clinical picture, and ataxia of

lips and tongue was a characteristic and early sign of the disease. Deafness was constant in all the moderately severe cases; in two there was inflammation of the eustachian tube. He advocates introducing a menthol and boric acid salve into the nostrils. Cough was rare and none of his 100 patients developed bronchitis.

In convalescence, bradycardia was the rule, and the patients were strictly warned against their natural tendency to abrupt movements as liable to bring on heart failure. He kept all the patients for two weeks of convalescence. The onset and the convalescence of typhus both suggest grippal influenza. The textbooks speak of myocarditis as a complication of typhus, but in his hospital service it was the constant and predominant feature of the disease from the first day of the onset to the last day of the convalescence. Nephritis is rare. He ascribes the low mortality—less than 10 per cent.—in the hospital to the systematic use of heart tonics, camphorated oil, spartein, alone or combined with strychnin or caffein, and, in the cases threatening heart failure, intravenous injection of strophanthin, 0.0001 gm. from one to four times a day. Saline infusion with a little epinephrin is the main reliance against the infection; camphorated oil combats the infection besides its tonic action on the heart. With intense headache or delirium, withdrawal of 20 c.c. of spinal fluid generally gave good results. In Portugal, typhus might be called "fisher's typhus," as the epidemics in Portugal always begin in fishermen's homes.

Semana Medica, Buenos Aires

April 11, 1918, **25**, No. 15

116 *Cholelithiasis. A. Althabe and E. Nicholson.—p. 393.
117 *Proposed Legislation on Prostitution. A. M. Gimenez.—p. 407.
118 *Prophylaxis of Tuberculosis. E. R. Coni.—p. 418.
119 *Diabetes Insipidus in Infant. F. A. Deluca.—p. 422.
120 Yoghurt. E. Fynn.—p. 425.
121 Sulphur in Biology. J. de R. Pailhade.—p. 427.

116. **Gallstones.**—In their experience with 240 operative cases of gallstones, Althabe and Nicholson remarked the preponderance of cholelithiasis in women, and the age between 25 and 30. Fully 89 per cent. of the women had borne children, thirteen had had from thirteen to nineteen pregnancies, and in 36 per cent. the first disturbances had been noticed during a pregnancy. The phenomena observed confirm that hypercholesterolemia is a constant factor in cholelithiasis, in women, at least. This cholesterolemic diathesis seems to be enormously exaggerated during the genital life of women.

117. **Regulation of Prostitution.**—Gimenez reproduces a bill presented recently in the Chamber of Deputies, and discusses legal measures for repression of commercialized vice.

118. **Municipal Decree for Prophylaxis of Tuberculosis.**—Coni relates that the decree in question has been in force for sixteen years and he reviews its operation. As long ago as 1872 the city council ordered that in every case of contagious disease the neighbors should notify the authorities. In 1902 a decree was issued imposing, under penalty, on the owner, tenant or occupant of a building or part of building the declaration to the city health bureau of every case of pulmonary tuberculosis. The twenty-seven paragraphs of the decree provide for disinfection of rooms, vehicles, cars, etc., with prohibition of spitting on the floor, etc. Many of the provisions have not been effectually enforced, but the effect of the whole decree—which in its day was far beyond anything adopted elsewhere—has been a most valuable factor in the customs and training in hygiene not only in the home country, but in other countries. The decree was of such advanced import that it was cited in the press of the leading countries in Europe and America.

119. **Diabetes Insipidus in Infant.**—The male infant was 3 months old when the essential polyuria first attracted attention. He is now 3 years old and weighs 11 kg. He drinks about 4 liters a day and voids an equal quantity of urine.

Siglo Medico, Madrid

June 1, 1918, **65**, No. 3364

122 Influenza or Dengue? C. M. Cortezo.—p. 422.
123 Criminal Responsibility in the Young. J. Canseco.—p. 426.
124 Erythrodermias. Sicilia.—p. 428.

June 8, 1918, **65**, No. 3365

125 Gangrene after Injection of Tincture of Iodin in a Hydrocele. A. P. Martin.—p. 442.
126 Treatment of Tuberculids. Sicilia.—p. 444.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

May 18, 1918, **1**, No. 20

127 *Morphin Tenesmus. E. C. Van Leersum.—p. 1374.
128 Pseudo-Crystallization Process of Fibrin. E. Hekma.—p. 1386.
129 *Open Puncture of the Pleura. W. Hoogslag.—p. 1393.
130 *Tests for Sugar. P. H. Kramer.—p. 1395.
131 *Congenital Heart Defect. J. Van Tilburg.—p. 1397.

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132 *Multiple Psychogenous Erosions. K. Edel.—p. 1433.
133 *Comparative Mortality of the Sexes. J. P. H. Kroon.—p. 1442.
134 Scabies. R. A. Reddingius.—p. 1451.
135 Proposed State Supervision of Hospitals. D. Schermers.—p. 1453.
136 *Loss of Greater Omentum. T. J. Jaski.—p. 1455.

127. **The Morphin Mouse-Tail Reaction.**—Van Leersum has confirmed in rats and mice the communications of Herrmann and Straub in regard to the stiffening of the tail which follows a small dose of morphin given to these animals. He has found further that the same reaction is observed with a number of other substances which have nothing else in common with morphin. He reports research on various animals. The morphin or its equivalent acts on the medulla oblongata, and the impulse is transmitted by the pelvic nerves, inducing intense tenesmus of the anus and bladder sphincters.

129. **Open Puncture in Pleurisy.**—Hoogslag has never observed any untoward by-effects when he tapped the effusion in pleurisy and after evacuation of the fluid allowed air to enter the pleura through the open trocar. He has treated forty patients with this open puncture, and the disease was often shortened while thick adhesions seldom formed. The tendency to recurrence seems to be checked by the air in the pleura. The puncture is made at the lowest point as the patient lies on that side, and 2 liters or even 3½ liters were thus easily withdrawn in some cases. One Italian surgeon has applied this open puncture in 207 cases and lauds its advantages over other methods. Others have applied it with benefit in pericarditis with effusion. A trocar is used about 8 cm. long by 0.4 cm. in diameter. When all the fluid has escaped, the trocar is withdrawn during the deepest possible expiration, preferably during a cough, which expels some of the air. The patient lies on the side affected, close to the edge of the bed or, better yet, lies across two bedsteads just far enough apart for the surgeon to stand between them. Hoogslag regards this as the simplest and most rational method for evacuation of a pleural effusion.

130. **Acetylsalicylic Acid Modifies Reaction for Sugar.**—Kramer reports the case of a physician whose urine responded positively to tests for sugar besides showing albumin, tube casts and blood corpuscles. The physician had been in a very nervous condition for some time and had been taking acetylsalicylic acid freely. Kramer examined also the urine of thirty soldiers who had been given 2 to 4 gm. of the same drug during the day. The urine in all responded positively to the Trommer test for sugar. He has not found any reference in the textbooks to this source of possible error in testing the urine, but Pinkhof has reported the casual discovery of similar findings.

131. **Congenital Heart Defect.**—Van Tilburg has been unable to find in the literature a case like the one he describes. The previously healthy young woman with patent ductus Botalli developed pulmonary tuberculosis, fatal in two years. The puzzling auscultation findings were explained by a thrombus obstructing the open duct and hanging loose in the pulmonary artery.

132. **Multiple Psychogenous Skin Defects.**—Edel's patient is a boy of 13 well developed physically but rather backward in his studies. The family is inclined to be neuropathic and the father had syphilis, well treated. For six months the boy has been having oval spots, like erosions, develop on the skin. There is first a smarting or burning and then in a few minutes the oval patch appears. Emotions, fear, anger seem to be the provocative cause of their appearance, and Edel was able

to induce the appearance of a spot of the kind by suggestion, applying the electric current or an ethyl chlorid spray lightly to a given area, and then telling the boy that the procedure was repeated with great intensity, when in fact the current or the spray was not turned on the second time. The limb was then dressed with a plaster bandage, but the "spot" developed under the bandage. This occurred twice, but following tests did not succeed. The boy was cured by a course of tepid to cold douches. No further spots developed after this except two one day when he was startled by a cannon being fired unexpectedly near him. The success of treatment confirmed the psychogenous origin of this skin trouble which may be classed as an angioneurotic diffuse erosive dermatitis.

133. **Comparative Mortality of the Sexes.**—This is Kroon's second study of this subject; the other was reviewed in these columns, Aug. 4, 1917, p. 416. Among the points brought out by his statistics is that the female death rate—both of the married and the unmarried—in the cities is lower not only than that of men but is lower than the mortality of women in the rural districts and smaller towns. He cites statistics from Prussia and Moscow which show this same lesser mortality of city women, and states that further study of the questions involved is necessary before they can be answered. He rejects the assumption that women are naturally more resistant than men.

136. **Loss of Greater Omentum.**—The man in an attempt to commit suicide had slashed his abdomen with glass, and a piece of the greater omentum, about 15 sq. cm., escaped from the abdominal wound and was found on the floor later. He recovered, and a year afterward was still in good condition.

Ugeskrift for Læger, Copenhagen

June 13, 1918, **80**, No. 24

137 *Duodenal Feeding of Infants. P. Hertz.—p. 943.
138 *Winter Bathing. E. E. Faber.—p. 949.
139 Ulceration and Eczema from Contact with Norwegian Fertilizer. V. Erlendsson.—p. 954. C. Jensen.—p. 955.

137. **Duodenal Catheterization for Infants.**—Hertz reports experiences which confirm that it is almost always easy to pass a tube into the duodenum of a normal young infant. In the last eighteen months he has applied this measure in treatment of eight infants with stenosis of the pylorus. In every case he was able to pass a Nélaton catheter, No. 18 or 19, through the pylorus into the duodenum although the stenosis was causing severe symptoms. To make sure that the catheter was in the pylorus, he examined a few drops of fluid obtained through the catheter. The reaction of the fluid is instructive, but in one case the mother's milk gave an alkaline reaction which might have proved misleading. It is sometimes possible to feel the catheter through the abdominal walls. When it rolls up in the stomach it can sometimes be palpated, to the left of the median line. The fact that the child does not vomit the food poured through the catheter testifies that it is in the duodenum when the child has been vomiting incessantly before.

In his eight cases he fed the babe 75 gm. of drawn breast milk twice a day after the stomach had been rinsed clean. Five other feedings were given in the ordinary way, breast milk when possible. The children were from 1 to 6 weeks old, and the stenosis had developed suddenly from a few days to three weeks before, and it lasted from three and a half to nine weeks in all. It averaged only six weeks, while the average in the cases without the duodenal catheter was nine or ten and a half weeks. The catheterization of the pylorus for fifteen or twenty minutes a day evidently contributed in reducing the tendency to spasmodic contraction, as the period of constant loss in weight was much shorter than in the other cases. When the child ceases to lose further in weight and does not vomit more than once or twice a day, then it begins to improve at once.

No untoward by-effects from the catheterization were observed in any instance. Bleeding from the stomach does not contraindicate it, and the supply of nourishment is the best means to combat this hemorrhagic tendency. No occult blood was found in the stools, which confirmed the lack of injury from the catheter. In a recent case of congenital stenosis of the pylorus with severe ede tumor in the jaw necropsy showed the duodenum natural in eve the necessity nothing to indicate dilatation or irritation a ws a case duodenal catheter had been used daily for several da r jaw measure is not a cure for stenosis of the pylorus, but a the with other measures it effectually combats its injurious effects. Catheterization is likewise a valuable aid in incessant vomiting from other causes, as in his two cases of pyonephrosis with stricture in both ureters, and also in cases of acute gastro-enteritis in which the stomach was so sensitive that not even water was retained. He gave these infants 150 c.c. of water through the duodenal catheter once or twice a day, in addition to subcutaneous saline infusion. This promoted diuresis and aided in the throwing off of the toxins and speedy recovery.

138. **River and Lake Bathing in Winter.**—Faber found albumin and casts in the urine of men after a fifty seconds swimming match in winter. But they promptly disappeared, and he regards them as the manifestation of a transient disturbance in the circulation from the cold water. He has investigated conditions also in sixty-five men and five women, from 27 to 65 years old, who are accustomed to out-of-door bathing in winter, staying in the water only from eight to forty-two seconds. All are enthusiastic on the bracing effect of the cold dip, and ascribe their freedom from colds, rheumatism, etc., to this cause. One said that eczema which had resisted specialist treatment for years subsided under these cold baths; another reported the same in regard to a seven-year fistula. One man said he had started the bathing because he always froze in winter, and it had cured him of this sensitiveness to cold. All the winter bathers examined said that vigorous exercise before and after the bathing was felt to be necessary. Faber adds that the hot baths of the Japanese, electric light baths, etc., have the same action, the inducing of a lasting hyperemia in the skin, improving its function.

Upsala Läkareförenings Förhandlingar

April 18, 1918, **23**, No. 3-4

140 *Operation for Anuria from Calculi; Two Cases. E. Utterström.—p. 117.
141 *Ferment Action on Succinic Acid. E. M. P. Widmark.—p. 134.
142 *Protein Requirements. G. F. Göthlin.—p. 159.
143 *Parathyroid Glands in Rabbits. A. Bjure.—p. 175.

140. **Operative Treatment of Anuria.**—In one of Utterström's two cases the anuria developed suddenly about a year after one kidney had been removed on account of injury from the numerous calculi it contained. When the anuria had lasted for five days, nephrotomy and decapsulation were done and the anuria subsided although the kidney pelvis contained pus under high pressure. The man is in good health still, four years since the intervention. In the second case the anuria was evidently a reflex phenomenon from the presence of a stone as large as a cherry in the left kidney. After decapsulation and nephrotomy of this kidney, the other kidney resumed functioning. The cases of stone formation in a single kidney are rare; he summarizes all that he had found in the literature.

141. **Ferment Action and Succinic Acid.** — Widmark describes research on succino-dehydrogenases in connection with enzyme action.

142. **Protein Requirements.**—Göthlin presents arguments to show that with a known calory requirement it is possible to determine the albumin ration as biologically equivalent to an amount of milk albumin representing 8.8 per cent. of the gross calory needs. This is the proportion of albumin which his and others' research has shown in breast milk. He remarks that this is a hitherto overlooked means of estimating the protein requirement of both infants and adults, and he cites numerous authorities to show the feasibility of the method, and the correctness of the figure he accepts, namely, 8.8 per cent.

143. **Parathyroid Glands in Rabbits.**—Bjure's report of his study of the parathyroids from 125 rabbits fills fifty-four pages. The main object was to determine the changes induced by age in these glands. Two plates accompany the article.

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ENTEROSTOMY AND ENTERO-COLOSTOMY

IN THE TREATMENT OF ACUTE INTESTINAL OBSTRUCTION FOLLOWING PELVIC OPERATIONS *

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Intestinal obstruction following abdominal section is such a distressing complication, the diagnosis is at times beset with so much difficulty, the prognosis is so doubtful, and the mortality so high, that I make no apology in bringing the matter to your attention.

The measures taken to prevent intestinal obstruction, such as the peritonealization of raw surfaces to which intestine may adhere, and the closure of all adventitious openings into which intestinal coils may slip, are commonly known and generally adopted. From personal observation and experience, in addition to the foregoing measures, I should like to emphasize the great importance of aseptic technic and the avoidance of intestinal trauma during the operation, and of judicious care in the handling of drainage and the administration of cathartics after the operation.

It is quite likely that an infection causing a localized peritonitis often plays a very important part in the origin of postoperative intestinal obstruction, and that whereas infection and infiltration of the intestinal coats always takes place secondarily after an intestinal loop is obstructed, it may be primary—the cause and not the effect.

An injury to the serous surface of the intestine that denudes or breaks the endothelial covering, or a localized bruising of the serous or muscular coat, or an interference with the blood supply of an intestinal loop may be the exciting cause of adhesions between the bowel and a neighboring part. The intestine under these conditions is peculiarly susceptible to infection, and if such occurs its wall may rapidly become infiltrated with inflammatory products. A combination of localized trauma with imperfect aseptic technic is not infrequent in the etiology of postoperative intestinal obstruction.

Pelvic drains become a source of danger when unwisely selected, placed or handled. A drain after six or eight hours becomes a protective pack. The surrounding parts adhere to it with more or less tenacity, depending on its structure, and exclude the infected area. If the drain is removed before the adhesions are secure, infection is released, and if the drain is taken out at a time when the adhesions between it and the surrounding parts are firm, traumatism is inevitable, and so we have again the combination of sepsis and trauma.

The unwise administration of cathartics following operation may precipitate an attack of intestinal obstruction. A coil of intestine lightly adherent, slightly kinked, and suffering with a moderate degree of localized infection, frequently recovers itself and the symptoms are gradually relieved if let alone; but if, instead of rest and quiet for the intestine, active catharsis is practiced, the affected loop is subjected to peristaltic movement and the repeated onrush of the intestinal contents; thus the bowel is traumatized. It becomes distended, the mechanical difficulties are increased, and obstruction may be precipitated.

These are the factors in the production of postoperative obstruction that I think it most important to avoid. The measures of prevention therewith recommended are the most careful aseptic technic, the avoidance of intestinal trauma, the very circumspect selection and handling of drains, and the avoidance of cathartics after operation until peristalsis, temperature and pulse are normal.

STAGES OF INTESTINAL OBSTRUCTION

It is quite likely that if every case of intestinal obstruction were immediately recognized and at once exposed to operation, a very large proportion of patients would recover. But the diagnosis during the early postoperative convalescence is by no means easy, for in the incipient stage obstruction may be simulated by other comparatively harmless conditions, such as tympanites, acetonuria, exaggerated ether nausea, etc., and for this reason postoperative obstruction is frequently complicated with a spreading peritonitis and toxemia by the time the condition is unmistakable, and an operation is undertaken for its relief.

McGlannan[1] has classified intestinal obstruction into the stage of onset, the stage of compensation, and the stage of toxemia. These represent no definite period of time as all three may occur within twenty-four hours, or several days may elapse. In the first stage there is intermittent and crampy or continuous pain, continuous nausea and vomiting, with or without constipation or diarrhea. These symptoms are independent of the ingestion of food and are not relieved by an enema. McGlannan says:

> Lavage of the stomach may empty that organ of food, gastric secretion or duodenal contents, but without permanently relieving pain. If, therefore, a patient is suddenly seized with abdominal pain and an effectual enema combined

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* Chairman's address, read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

[1] McGlannan, Alexius: Intestinal Obstruction, THE JOURNAL A. M. A., Aug. 21, 1915, p. 673.

> with gastric lavage does not bring relief from the pain, a diagnosis of acute intestinal obstruction should be made and operation promptly performed.
>
> If there is any hesitation about operating on such slight symptoms, a second lavage should be done after an hour. The presence of duodenal material in the washings at this time makes the diagnosis certain and operation imperative. . . .
>
> In the second stage we have persistent pain, distention, a visible and palpable spastic coil of intestine, visible peristalsis . . . local tenderness, etc. In this stage we frequently have gangrene of the bowel and a localized peritonitis at the seat of obstruction. In the third stage the toxemia overshadows the other complications which may be present and becomes the most urgent indication for treatment.

It is probably true that if patients exhibiting the symptoms mentioned by McGlannan as constituting his first stage were uniformly operated on, all cases of obstruction, or nearly all, would be saved; it is also probably true that many operations would be performed unnecessarily, and there would be some mortality from the second operative interference. Be that as it may, the fact remains that a majority of cases of postoperative obstruction are twenty-four or more hours old before operation is undertaken, and during that time irreparable damage may be done to the intestine, and the patient may be in the last stages of toxemia.[2]

When we fortunately encounter an early case, all that is needed is the relief of the obstruction by the separation of adhesions, division of bands, etc., and the outcome is usually successful. In later cases there is always some constriction and infiltration of the intestine at the obstructed point, with distention and inflammatory changes in the intestinal walls for a variable distance above. In volvulus and strangulation, the morbid anatomy, whatever it may be, is definitely localized to a single loop, and resection of that part with anastomosis of the bowel above and below will restore the intestinal canal. In many instances, however, while the intestinal coats have not been devitalized, the inflammatory changes are not confined to a single loop and the amount of distended and infiltrated bowel is too great for resection in the toxic patient. Here the complication is peritonitis or toxemia.

SOURCE OF TOXEMIA

The actual source of the toxemia in intestinal obstruction has been ascribed to various factors, notably the decomposition of food and the growth of bacteria in the intestinal contents; also to the dehydration of the tissues of the body brought about by the frequent rejection of the gastric contents and the accumulation of fluid in the obstructed intestine. In recent years, surgical physiologists and pathologists[3] having observed that high obstruction of the small bowel is so much more rapidly fatal than low obstruction, death has been ascribed to a toxin resulting from the aberrant activity of the duodenal epithelium and probably also of the pancreatic cells. Draper,[4] the champion of this theory, believes that there is a point in the small intestine, which he estimates at about the termination of the jejunum, above which the toxin is certainly of duodenal or pancreatic origin, and below which bacterial invasion may be the prominent feature.

We are inclined to believe that the conclusions of Hartwell and Hoguet,[5] enunciated in 1912, are true in regard to the obstruction seen after pelvic operations. They declare that in dogs, at least, intestinal obstruction causes death by the presence in the blood of toxic substances that produce fatal lesions in the kidney, liver and other tissues. The essential factor that admits this substance into the blood is an injury to the lining cells of the intestine, caused by the irritating action of the stagnated contents, together possibly with the mechanical damage due to stretching. The poisons themselves may arise from the secretory activity of the various digestive glands or from bacterial activity. They may be the same as those found in the normal tract, or they may be substances newly formed under the conditions of stagnation. Whatever their source, they are innocuous as long as the mucosa remains normal.

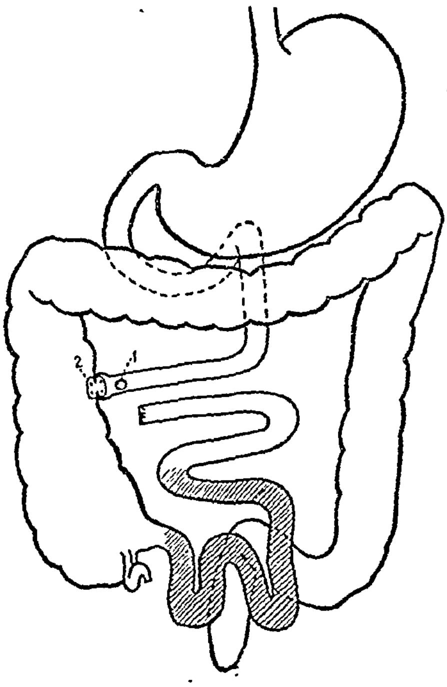

Fig. 1 (Case 1).—Murphy button anastomosis of proximal end of divided ileum (high up) with cecum. The distal end of the ileum was closed and dropped.

OPERATIVE MEASURES

We have, then, in most cases at the time of operation, this problem of the toxemia to meet in addition to the relief of the obstruction and the treatment of the affected intestine. Whatever the source of the toxemia, no one can deny that the vital element in its treatment is the drainage of the intestinal contents above the obstructed point. Evacuation of the intestinal contents has been an essential part of the operative procedure, and it will be followed with successful results when the peristaltic action of the intestine is sufficiently unimpaired to drive the residue onward past the point of relieved obstruction and cause free evacuation of the bowels. But how often after the point of obstruction is removed and the distended bowel immediately above it is emptied, peristalsis is impaired, and before the intestine recovers itself sufficiently, there is a reaccumulation of the poisonous contents which is not driven through the affected area and the patient dies of toxemia.

It is here that continuous drainage by means of enterostomy above the obstructed point saves the day. Nevertheless, the manifest disadvantages of enterostomy, even though the patient's life be spared, have caused it to be used only in the most desperate cases when the immediate result alone dare be considered, for in a majority of instances a subsequent closure of the enterostomy wound and a restoration of the fecal current must be undertaken.

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[2] In McGlannan's series the average duration at the time of operation was two and one-eighth days in the successful cases, and three and one-third days in those that were fatal.

[3] Whipple, G. H.; Stone, H. B., and Bernheim, B. M.: Intestinal Obstruction: A Study of a Toxic Substance Produced in Closed Duodenal Loops, Jour. Exper. Med., 1913, **17**, 286 and 307. Sweet, J. E.; Peet, Max N., and Hendrix, B. M.: High Intestinal Stasis, Ann. Surg., 1916, **68**, 720. Hartwell, J. A.: Intestinal Obstruction, Jour. Exper. Med., 1913, **18**, 139. Mayo, W. J., Resection for the Relief of Intestinal Obstruction, The Journal A. M. A., Sept. 14, 1907, p. 903. Maury, J. W. Draper: Death in Acute Intestinal Obstruction and Kindred Conditions is Due to Physiologic Disturbance, The Journal A. M. A., Jan. 1, 1910, p. 5.

[4] Draper, J. W.: Intestinal Obstruction, The Journal A. M. A., Oct. 7, 1916, p. 1080.

[5] Hartwell, J. A., and Hoguet, J. P.: An Experimental Study of High Intestinal Obstruction, Am. Jour. Med. Sc., 1912, **143**, 357.

One might hope, therefore, for a way of effectually draining the obstructed intestine without the disadvantages of a fecal fistula and the necessity of another operation.

The following situation confronts us: We have an intestine distended with poisonous septic products above the obstructed point, an intestinal tube in the obstructed area whose walls are infiltrated with inflammatory products and surrounded with localized peritonitis—a segment of intestine in which normal peristalsis cannot be confidently expected. This atony of the intestinal coats, this addition of a localized peritonitis to the mechanical obstruction, is a factor in all but the earliest cases.

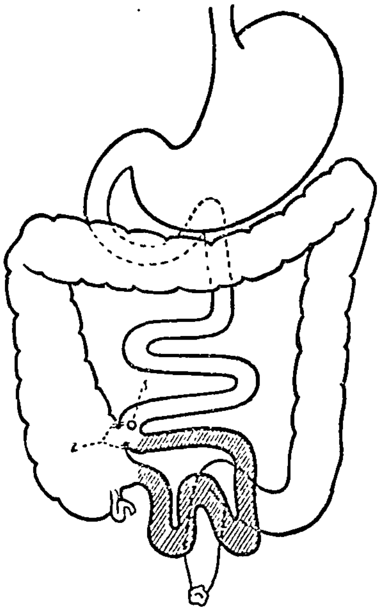

Fig. 2 (Case 2).—Suture anastomosis between ileum and cecum without section of ileum.

The part played by the intestinal muscle is seen in chronic pelvic inflammatory disease, in which the small intestine often is so bound down and angulated by adhesions that we wonder how the bowel can act at all, and yet in some such cases even constipation has not been a symptom. Is it not the explanation that here the muscular power of the intestinal walls is unimpaired, and the successive waves of peristalsis are able to drive the intestinal contents onward? On the contrary, when there is peritonitis and infiltration of the intestinal wall with inflammatory products, peristalsis is so weak that an apparently slight mechanical impediment may be sufficient to prevent the passage of the intestinal contents.

A case of acute obstruction, which I shall describe later, in which the patient was saved by enterostomy and subsequent intestinal exclusion, led me to ask why we should not exclude the damaged section of the intestinal tract in acute pelvic obstruction and reestablish the intestinal canal by anastomosing the part above with the part below the obstruction. It has been shown by the work of Lane and others that large portions of the intestinal tract may be permanently excluded without detriment to the patient. Since that time, in four patients, I have excluded the obstructed loop and three of them recovered. They were all in desperate condition at the time of the operation, and all of them without much question would have died without it.

Exclusion of the damaged loop and drainage of the bowel above the obstruction may be accomplished by entero-enterostomy. Intestinal relationships thereby made need not be permanent, for when the acute symptoms have subsided, it is quite possible that the bowel may entirely recover itself, the normal course of the intestinal contents may be reestablished, and the anastomotic opening gradually cease to functionate. Although I have not had a chance to verify this occurrence in my cases, the normal action of the intestine at a later date seems to warrant this assumption.

In order to make the drainage of the distended loop as effectual as possible, and so that the intestine into which the contents of the upper bowel are delivered might be emptied with facility, the anastomosis was made between the small intestine above the point of obstruction and the large intestine below it. Either the cecum or the sigmoid flexure was selected, depending on its proximity to the affected loop. But when the case was very urgent, the toxemia marked and the peritonitis well developed, anastomosis with the lowest available part of the colon (iliosigmoidostomy) was selected as the procedure of choice; a rectal tube was inserted into the bowel up to the anastomotic opening, and, in one case at least, the intestinal contents expelled into the rectum from the ileum were being discharged before the patient had left the operating table.

When iliosigmoidostomy was done, it was felt there was less need for enterostomy and manipulative drainage of the bowel because the intestinal contents discharged into the sigmoid can be at once evacuated by a rubber tube. In the successful case in my series it was omitted. When the anastomosis is with the cecum, enterostomy is desirable in order to prevent absorption of the intestinal contents from the cecum, and in the two successful cases of anastomosis between the ileum and the cecum, this was done as a preliminary measure. Enterostomy, which is an absolute necessity as a preliminary step in all operations for obstruction in order to get rid of the toxic contents, requires some time and may be associated, in spite of care, with soiling of the operative field; furthermore, it is not always as easily accomplished, nor can it be as effectually done as it is painted, and must be accompanied by a certain amount of traumatism to the intestinal coats. In the worst cases, therefore, anastomosis of the small bowel with the sigmoid, which makes this preliminary evacuation unnecessary, saves time and prevents traumatism.

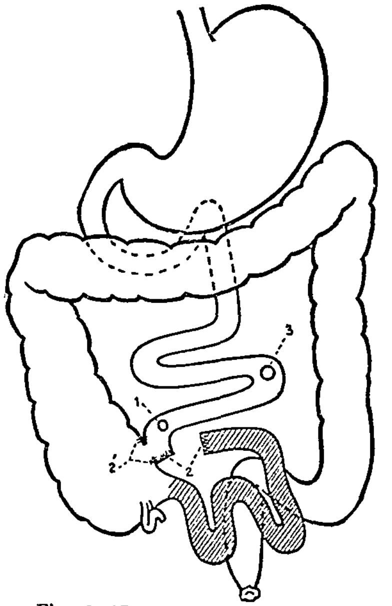

Fig. 3 (Case 3).—Division of ileum; closure of both ends; lateral suture anastomosis between ileum and cecum. Lower end of ileum dropped.

The subsequent history of the patients in whom I have performed enterocolostomy seems to show that the exclusion of a part of their intestinal canal has done them no harm. They are in good health and have had no further trouble. As a result of this experience, I believe that enterocolostomy has a distinct place in the therapy of acute intestinal obstruction following pelvic operations, and especially when the condition is advanced and complicated with pelvic peritonitis and toxemia.

REPORT OF CASES

Case 1.—L. M., aged 28, was operated on, Jan. 11, 1911, for extra-uterine pregnancy A right salpingo-oophorectomy, left salpingectomy and appendicectomy were performed, with posrior vaginal drainage. Convalescence was complicated by suppurating incision. Symptoms of obstruction developed about February 5, after the ingestion of raw fruit. The diagnosis was unquestionable; February 8 operation revealed free peritoneal fluid, pelvic peritonitis and extensive adhesions between the coils of the small bowel in the pelvis and between the small intestine and under surface of the abdominal incision. The patient's condition was desperate. A high enterostomy was made. The patient rapidly improved. There remained, however, an intestinal fistula which was high up, apparently in the very first part of the ileum. The substances taken by mouth would be discharged from the fistula within fifteen minutes. The skin of the abdominal wall was constantly irritated, and the emaciation of the patient became extreme. March 22, the lower end of the proximal segment was anastomosed to the cecum with a Murphy button. The upper end of the distal segment was closed and dropped. The patient passed the button on the tenth day and made a good recovery. At present, the patient is in excellent health and doing her own work.

Case 2.—J. T., aged 28, was operated on, April 4, 1912, for myomata uteri and retroflexioversion. Myomectomy was performed; five incisions were made; a Baldy suspension was done. The recovery was uneventful. August 17, there were symptoms of obstruction. These persisted until August 20, when they became unmistakable and operation was performed, which revealed extensive adhesions between the small bowel and the pelvic viscera, pelvic peritonitis and toxemia. Enterostomy of the ileum above the involved area was performed with evacuation of the intestinal contents, division of the constricting band, and anastomosis between the ileum and cecum. The recovery was uneventful and the patient is now in excellent health.

Case 3.—C. L., aged 35, was operated on, April 12, 1913, for chronic appendicitis, retroflexioversion of the uterus and cystic ovary. Appendicectomy, left salpingo-oophorectomy and ventrosuspension were performed. The early days of convalescence were somewhat stormy. The patient complained constantly of pain. Symptoms of obstruction were unmistakable, and operation was performed, April 22, 1913. Adhesions were found between the ileum and the left broad ligament. Enterostomy of the ileum above the obstructed area was performed with evacuation of fluid, division of the bowel at the site of the enterostomy, closure and invagination of both ends and anastomosis of the ileum above this point with the cecum. The patient was slightly improved, but symptoms recurred about April 25. Operation revealed peritonitis involving the lower ileum and the area of anastomosis. Enterostomy of the small intestine above this point was done and was followed by prompt recovery with spontaneous closure of the fistula. At present, the patient is in fair health, though she suffers occasional attacks of flatulence and pain.

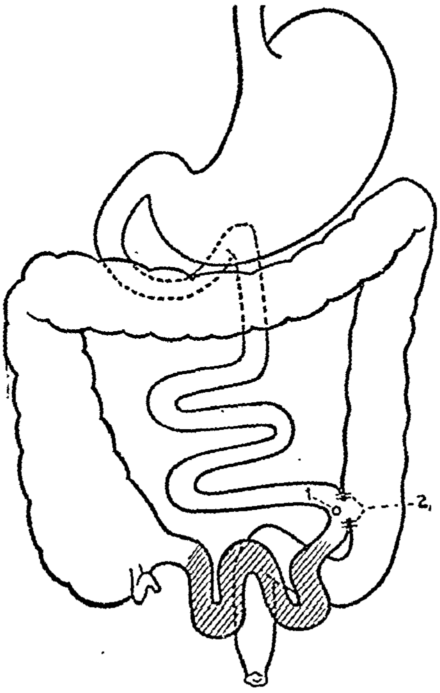

Fig. 4 (Case 4).—Ileosigmoidostomy (suture) for low obstruction and torsion of ileum due to an adventitious bend.

Case 4.—A. F., aged 36, was operated on, June 13, 1905, for bilateral salpingitis, appendicitis and retroflexioversion of the uterus. Right salpingo-oophorectomy, left salpingectomy and appendicectomy were performed with release of intestinal adhesions, and ventrosuspension. Symptoms of obstruction began, Aug. 15, 1915. These persisted until August 22, when a diagnosis of obstruction was made and an operation was performed. A coil of lower ileum had slipped beneath an adventitious band, and had then undergone torsion. There was peritonitis and marked toxemia. Enterostomy of the ileum above the obstructed point was performed, and then ileosigmoidostomy. There was no discharge of gas or feces from the bowel, and the patient died within two days.

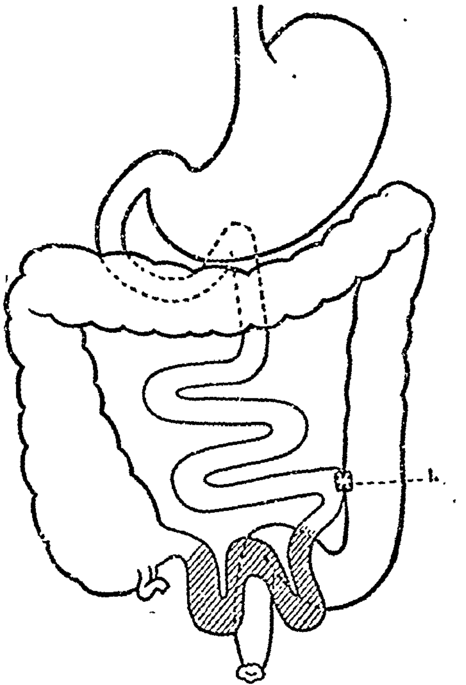

Fig. 5 (Case 5).—Ileosigmoidostomy with Murphy button for extensive adhesions forming after a uterus suspension operation. The small bowel was firmly adherent in the pelvis.

Case 5.—H. P. was operated on, June 7, 1916, for chronic appendicitis and retroflexioversion of the uterus with adherent adnexa. Appendicectomy was performed with release of adhesions and Baldy suspension of the uterus. Symptoms of obstruction began about June 21. They became unmistakable by June 24, and an operation was performed, which revealed coils of the small bowel adherent in the pelvis, pelvic peritonitis and toxemia. Anastomosis between the ileum high above and the obstructed area and the sigmoid was done with a Murphy button. The recovery was uneventful.

INTRASPINAL TREATMENT OF CEREBROSPINAL SYPHILIS

LATER RESULTS, BASED ON FIVE YEARS' OBSERVATION *

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AND
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It is five years since we first acted on the suggestions of Swift and Ellis[1] in regard to the intraspinal treatment of cerebrospinal syphilis. Since then we have attempted to weigh the value of their suggestions. We realized that a judgment could not be passed before some years of patient effort and observation. While we have published detailed reports of our work previously, we have been stimulated to present additional data by an article of Dr. Bernard Sachs[2] entitled "Truth About Intraspinal Injections in Treatment of Syphilis of Nervous System." It would be most unfortunate if many of the statements made by him were accepted generally. Dr. Sachs has presented his personal opinion of a mode of treatment, but he has failed to state adequately the data from

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* Read before the Section on Practice of Medicine at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

[1] Swift, H. F., and Ellis, A. W. M.: New York Med. Jour., 1912, **96**, 53.

[2] Sachs, Bernard: Truth About Intraspinal Injections in Treatment of Syphilis of Nervous System, The Journal A. M. A., Aug. 25, 1917, p. 681.

which he drew his conclusions. It is distasteful for us to enter a controversy, but in the interest of the real truth we cannot let certain of his assertions pass unchallenged. We shall consider the objections raised by this writer one by one.

He quotes with approbation a statement of Halliburton that "the use of salvarsan (arsphenamin) in locomotor ataxia and similar affections via the cerebrospinal fluid has been abandoned as it is fatal not only to the syphilitic organism but also to the patient." This is flatly contradicted by our personal experience. In five years we have administered a total somewhat in excess of 220 intraspinal injections to thirty-four patients. Absolutely no ill effect has been noted, nor indeed have we seen even a remote one which could be charged justly to the method. Three paretics and one tabetic eventually died of the disease and one tabetic died as the result of an intercurrent affection. Even bladder irritation was noticed in only one case, and here it was of the most transitory nature. A reaction in the way of temporary and occasionally severe exacerbation of the dorsal root pains is the rule.

It should be understood that our experience has been limited to the use of the technic devised by Swift and Ellis[3] in which auto-arsphenamized serum is employed and to the modification of Ogilvie,[4] in which the human serum is arsphenamized in vitro with a known amount of the drug, the maximum amount being 0.5 mg. We have had no experience with the other methods in which more or less diluted arsphenamin or neo-arsphenamin is added directly to the spinal fluid, notable among which is the method of Ravaut. Careful study of the literature will show that most of the disastrous results have followed the use of the latter procedure, and we feel, therefore, that it is not a method to be recommended. Accuracy demands that some distinction be made between these methods before condemning them all because of a fault that is quite evidently inherent to one of them.

Another objection is that "claims were made for the intraspinal method chiefly by men whose interest was centered on a change in the Wassermann reaction, in a reduction of the cell count of the cerebrospinal fluid and in a change in the globulin reaction rather than in the clinical condition of the patient. After all, the patient remains the chief consideration." Here the writer has questioned the deductions drawn by previous investigators from very careful work on the ground that their attention was fixed on the laboratory changes rather than on the clinical features. We fear that the critic has shown here his failure to study in detail the available case reports[5] in which the clinical side is given the great emphasis to which it is entitled. There can be no doubt that to these workers the patient was the single consideration. The laboratory findings were published as part of the evidence, for they are objective and lend themselves well to record. Though of great importance, no one would ever attempt to interpret their significance taken alone. We do not hesitate to assert dogmatically that clinical improvement generally goes hand in hand with favorable changes in the various reactions. This statement is based on a consideration of some 250 laboratory examinations made in the cases which are here reported and on many additional laboratory examinations made on patients treated by other methods or for purely diagnostic purposes. No one conversant with the results would claim that the correspondence between clinical and laboratory findings is invariable. It is hardly necessary to direct attention to many other instances in medicine in which similar occasional deviation from the usual is seen. To argue from rare exceptions is scarcely logical. If one would disregard the use of the laboratory reactions in following the progress of treated cases, consistency would compel him to abandon the use of the same tests in the diagnosis of obscure neurologic conditions, and we feel that no one would like being robbed of the recent fruit of the investigator's toil.

The next argument to consider is that "it takes the experience of a trained neurologist and psychiatrist to estimate at their true value changes in the clinical symptoms." As Fordyce cogently remarks, "It does not require the experience of a trained neurologist to convince these patients that their condition has been changed from hopeless invalidism to comparative good health." Any observer is competent to detect the change from the ataxic to the nonataxic or from total or relative incapacity to the power to earn a living. The patient himself is fully able to tell whether or not he is racked by excruciating pains or tortured by gastric crises. The unprejudiced can readily satisfy themselves from a perusal of many published case reports that the signs of improvement when noted are of the obvious and unquestionable kind.

Sympathy was expressed with Halliburton's view that "particularly regrettable is the divorce between those who pursue their investigations by the bedside and those who work in the laboratory." It would appear to us that the writer has erred in expression, for he has really taken exception to the conclusions reached by those who actually have pursued their investigations both at the laboratory and at the bedside. Swift[6] replied that as he himself was naturally interested in the welfare of his patients, both the bedside and the laboratory features of each case were accurately recorded, for neglect of either one is not in accord with the modern tendency in medicine. He who honestly seeks truth must be able and willing to seek light on his problem wherever he may find it. This has been done by a number who have investigated and reported on the usefulness of the intraspinal method. Before attempting to cast sweeping reflections on this work, it would be well for the critic to give evidence that he has reviewed all of it carefully and discriminatingly or, failing in that, to submit to the tribunal of the thoughtful a study made with equal care of a similar series of cases, using the same methods. The cause of truth is aided little by those who deliver ex cathedra opinions unless these opinions are based on recorded facts that may be critically reviewed by others.

The assertion that "there is nothing which the intraspinal method achieves which cannot be accomplished by the intravenous" brings us to the very crux of the matter. First let it be understood that we do not raise the question as to the comparative value of the exclusive use of the intraspinal route or the exclusive use of the intravenous route. It is freely admitted that there are many patients who make all the improvement that can be expected with the intravenous use of arsphenamin. Improvements of this sort we see often.

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[3] Swift, H. F., and Ellis, A. W. M.: The Treatment of Syphilitic Affections of the Central Nervous System, with Especial Reference to the Use of Intraspinous Injection, Arch. Int. Med., September, 1913, p. 331.

[4] Ogilvie, H. S.: The Intraspinal Treatment of Syphilis of the Central Nervous System with Salvarsanized Serum of Standard Strength, The Journal A. M. A., Nov. 28, 1914, p. 1936.

[5] Swift and Ellis (Note 3). Ayer, J. B.: Boston Med. and Surg. Jour., 1914, **170**, 452. Draper, George: Effect of Intravenous and Intraspinal Treatments of Cerebrospinal Syphilis, Arch. Int. Med., January, 1915, p. 16. Dexter, Richard, and Cummer, C. L.: The Intraspinal Treatment of Syphilis of the Central Nervous System, According to the Method of Swift and Ellis, Arch. Int. Med., January, 1916, p. 82.

[6] Swift, H. F.: Intraspinal Treatment of Syphilis of the Central Nervous System, Another View, The Journal A. M. A., Dec. 22, 1917, p. 2092.

This is well illustrated by the case of J. W., who was seen first in October, 1917, with a marked, almost incapacitating ataxia and severe lightning pains. The history and physical findings were unquestionable. He was given six intravenous injections of the diarsenol brand of arsphenamin, totaling 2.3 gm. His ataxia has entirely disappeared. He pursues his occupation as a railway brakeman without handicap, he is able to walk with his eyes closed in a straight line 40 feet, and he runs about his work in the freightyard as well as his fellow workers. He recently reported that he had played a nine-inning game of ball. The pains are only occasional and not severe. The last laboratory examination showed the blood Wassermann reaction, negative; spinal fluid, cells, 0; globulin —; Wassermann reaction, negative, even with 1 c.c. and a moderate curve in the syphilitic zone with the colloidal gold reaction.

Instances of this kind might be multiplied. We have found, nevertheless, that there are a definite number who would receive no aid if this method alone were available. These group themselves into two classes:

1. Those who because of idiosyncrasy are unable to endure either vigorous mercurial therapy or the intravenous injections of arsphenamin.
2. Those who, though able to stand treatment given in either or both of these ways, show little or no improvement.

In regard to the first group, we have been struck with the number of tabetics who are unable to stand mercury and who, being underweight and in poor general condition, seem to regress rapidly with its use. For them mercury is toxic and must be abandoned. Similarly it is unfortunate that there are many who take repeated intravenous injections of arsphenamin very poorly. While the first one or two treatments may be well borne, the subsequent ones produce gastric symptoms of such severity, or nitroid crises so alarming in nature, that this avenue of attack likewise is closed. It has been objected that we can secure the maximum results with intravenous therapy if given frequently enough. As Fordyce[7] states, it is rarely possible to give arsphenamin as frequently as Sachs stipulates, namely, injections of from 0.3 to 0.4 gm. every three or four days until the patient has received fifteen, twenty, or even 50 injections. Patients who can endure injections of such frequency are unusual, in our experience.

The second group, comprising those who are able to withstand intensive mercurial therapy or intravenously given arsenic but fail still to show a proper degree of improvement, is even more important. It has been our general practice to employ these methods at first, and to adhere to them when the results justified. We have found, however, that in many cases recourse has been had to the intraspinal method. Certainly it does not invariably accomplish as much as one would like to have it, but the results have been striking in a large number of the type of cases just described. This has been definitely established in numerous careful studies to which reference has been made. Our own observation has convinced us of the great usefulness of the method in certain forms of central nervous system involvement. In support of this view abstracts of case histories are appended.[8] Unfortunately, considerations of space forbid the desirable expansion of these reports, but they serve to show briefly the essential features.

It is difficult to assign to all of these cases a definite clinical designation based on a classification that has been rendered obsolete by recent acquisitions to our knowledge of pathology, but we shall divide them into these classes: tabes dorsalis, syphilitic meningitis, paresis, and the spastic syphilitic paralysis of adults.

Intraspinal therapy has been employed in seventeen cases of tabes dorsalis. The results are given in the accompanying tabulation.

RESULTS IN THE TREATMENT OF TABES DORSALIS

Results	No. of Cases
1. Maximum improvement	3
2. Decided improvement	9
3. Moderate improvement	1
4. Slight or no improvement	3
5. Eventual death	1

In the first two classes, which includes approximately 66 per cent. of the total, we have placed those who have shown a restoration to normal from a functional and economic standpoint. Anatomic cure in advanced cases is not claimed, nor can it be expected, since degenerated nerve fibers cannot be regenerated. Very rarely do we see deep reflexes restored or pupillary responses return to normal. In addition, the term "maximum improvement" implies the complete and apparently permanent disappearance of ataxia, sensory signs and symptoms and dorsal root pains, with increase in weight and recovery of normal gait, accompanied by the abolishment of all positive laboratory findings. Cases 2, 4 and 6 fill these requirements:

Case 2.—W. B., man, aged 45, with advanced tabes, who had been infected at the age of 25, had lancinating pains and marked ataxia, and had to walk with a cane and be assisted by some one. There had been symptoms for two years prior to our first examination, May 8, 1913. Four previous intravenous injections of arsphenamin had resulted in only slight improvement. The first laboratory examination showed: Blood Wassermann reaction, +++; spinal fluid Wassermann reaction, +++ with 0.1 c.c.; cells, 75; globulin, +. Twenty intravenous injections of arsphenamin were given, a total of 10.7 gm. Fifteen intraspinal injections (Swift-Ellis) were given, and a little mercury. The last laboratory examination, Jan. 2, 1918, showed: Blood Wassermann reaction, negative; spinal fluid Wassermann reaction, negative, even with 1 c.c.; globulin, +; colloidal gold curve, in syphilitic zone. The patient runs a ranch in the West. He works from 5 a. m. to 9 p. m. He drives a motor on roads on the edge of a canyon. There is no ataxia and no pain. The reflexes are the same. The last treatment was given March 2, 1915. He has been under observation five years. There is a maximum of improvement.

Case 4.—C. H. Z., aged 44, had moderately advanced tabes. The date of infection was not known. There had been symptoms for several years before our first examination, June 5, 1914. Severe gastric crises, lasting several days, left the patient in poor condition and they were frequent enough to interfere seriously with business. There was incontinence of urine. The first laboratory examination showed: Blood Wassermann reaction, not done; spinal fluid Wassermann reaction, +++, with 0.2 c.c.; 62 cells; globulin, +++.

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[7] Fordyce, J. A.: Truth About Intraspinal Injections in Treatment of Syphilis of Nervous System, a Reply, The Journal A. M. A., Nov. 3, 1917, p. 1482.

[8] The majority of the case reports have been omitted on account of lack of space, but will appear in the Transactions of the Section and in the authors' reprints. A copy of the latter can be had on application to the authors.

Eleven intravenous injections of arsphenamin were given, a total of 5.3 gm. Ten intraspinal injections (Swift-Ellis) and one intraspinal injection (Ogilvie), but no mercury, were given. The last laboratory examination, March 10, 1916, showed: Spinal fluid Wassermann reaction, negative, 0.1 to 1 c.c.; cells, 0; globulin, negative. The patient has gained 17 pounds in weight and has had no pain for one year and no gastric crises for three years. The patient manages a business without interruption. The reflexes are unchanged. The gait is normal. The last treatment was given March 10, 1916. The patient has been under observation four years. There has been a maximum of improvement.

CASE 6.—D. W. H., man, aged 39, with moderately advanced tabes, was infected at 25, and the first symptoms, "a nervous disturbance," appeared in March, 1913. Later a "nervous breakdown," associated with dyspepsia, occurred. In October, 1914, stiffness and numbness were noticed in the extremities. Soon after there was severe pain in the back and much difficulty with locomotion. The first laboratory examination, March 13, 1915, showed: Blood Wassermann reaction, negative; spinal fluid Wassermann reaction, negative, 0.1 to 0.5, +++ in 1 c.c.; cells, 2; globulin, +. Nine intravenous injections of arsphenamin, a total of 3.85 gm. Six intraspinal injections (Swift-Ellis) and four intraspinal injections (Ogilvie), but no mercury were given. The last laboratory examination, June 23, 1917, showed: Blood Wassermann reaction, negative; spinal fluid Wassermann reaction, negative, 0.1 to 1 c.c.; cells, 0; globulin, negative; colloidal gold curve, negative. The patient is in active business as a bond salesman. There are no gross signs of trouble. The gait is normal. There is no ataxia and there are no pains. The last treatment was given June 22, 1917. The patient has been under observation three years. A maximum of improvement has occurred.

"Decided improvement" means that although there has been restoration to full earning capacity with all that this implies, there remain certain symptoms, such as a moderate amount of ataxia or occasional though infrequent attacks of pain, or the persistence of positive findings with one or two of the laboratory tests. In other words, the active process seems arrested, but obvious vestiges of the old trouble remain. Case 15 will be given as an example:

CASE 15.—J. W. T., man, aged 42, with advanced tabes, did not know the date of infection. There had been symptoms for ten months previous to the first examination, July 14, 1915. He had severe pains in the extremities, numbness in both feet and the left hand and girdle sensation. The gait was very ataxic. The patient was emaciated and anemic. The trouble had been diagnosed as rheumatism. The pupils were small. They reacted to light and accommodation. The knee jerks and ankle jerks were absent. The patient was practically incapacitated for work. The first laboratory examination showed: Blood Wassermann reaction, negative; spinal fluid Wassermann reaction, +++, with 0.5 c.c.; cells, 57; globulin, +. Eleven intravenous injections of arsphenamin, a total of 4.55 gm. Eight intraspinal injections (Swift-Ellis) and sixteen intraspinal injections (Ogilvie), and a slight amount of mercury were given, which he bore poorly. The last laboratory examination, March 6, 1918, showed: Blood Wassermann reaction, negative; spinal fluid Wassermann reaction, negative from 0.1 to 1 c.c.; cells, 3; globulin, negative; colloidal gold curve, negative. The weight increased 18 pounds. Ataxia is slight now. The color is now good. There is economic restoration. The patient is successful in managing his business There are now only occasional dull aches in old areas. The last treatment was given March 6, 1918. The patient has been under observation three years. There has been decided improvement.

The other classes are self-explanatory. It is noteworthy that only three of the eighteen patients showed no improvement, that only one case progressed to a fatal termination, and that with all of these, it was impossible to push treatment as urgently as we desired.

As syphilitic meningitis we have classed those cases in which the symptoms of an exudative meningeal involvement predominate. All occurred late in the history of the infection. The improvement has been rapid and striking. It has seemed to us that brilliant results have been secured in processes both rapidly progressing and extensive, in which older methods would have been unavailing. As examples, we shall recount the history of two cases:

CASE 1.—W. I. S., aged 29, with syphilitic meningitis, had been infected at the age of 17. The patient had "rheumatic pains" for one year prior to our first examination, Feb. 7, 1913. There was retention of the urine, sudden ptosis of one eyelid and hemiplegia. The first laboratory examination showed: Blood Wassermann reaction, +++; spinal fluid Wasserman reaction, +++, with 0.2 c.c.; cells, 153; globulin, +++. The patient was given thirteen intravenous injections of arsphenamin, a total of 5.73 gm., seven intraspinal injections (Swift-Ellis), one intraspinal injection (Ogilvie) and considerable mercury by inunction and injection. The last laboratory examination, Sept. 13, 1917, showed: Blood Wassermann reaction, +++; spinal fluid Wassermann reaction, negative, even with 1 c.c.; cells, 0; colloidal gold curve, negative. The patient gained 10 pounds in weight. Formerly bankrupt, the patient is now managing a successful business, has paid old debts and works hard. There is no paralysis. The pupils are still abnormal. The knee jerks are absent. There is only an occasional attack of pain. The last treatment was given Sept. 13, 1917. The patient has been under observation five years. There has been decided improvement.

CASE 3.—H. O. B., aged 34, with syphilitic meningitis, suffered a very acute onset and was brought to the hospital for what was supposed to be delirium tremens. Two weeks later there was paresis of the left arm and the left side of the face. There was incontinence of urine and feces. The first laboratory examination, March 21, 1914, showed: Blood Wassermann reaction, +++; spinal fluid Wassermann reaction, +++, with 0.1 c.c.; cells, 550; globulin, ++. The patient had eight intravenous injections of arsphenamin, a total of 4.5 gm., seven intraspinal injections (Swift-Ellis) and a moderate amount of mercury. Last laboratory examination, March 5, 1918, showed: Blood Wassermann reaction, negative; spinal fluid Wassermann reaction, negative from 0.1 to 1 c.c.; cells, 7; colloidal gold curve, negative. The patient works at former employment at the old salary. The memory is slightly impaired for events before the onset of the condition. There is slight facial hemiparesis. Otherwise the patient is normal. The reflexes and pupils are normal. The last treatment was given Sept. 28, 1915, with mercury occasionally since. The patient has been under observation four years. There has been decided improvement.

To employ the terminology that has been defined above, the results may be expressed as being from decided to maximal improvement in all instances.

It may be objected that results equally satisfactory would have been secured had the intravenous route alone been employed. This occurred to us, and in many instances we employed the intravenous method at first, reverting to the intraspinal method only when progress was unsatisfactory. Indeed, it was by instances of this sort that we have been convinced of the usefulness of intraspinal treatment. Fordyce has shown this in a most convincing way. We might cite as illustrative instances from our series Cases 2, 16, 17 and 24. The following abstracted case history will serve as an example:

CASE 17.—G. F. D., aged 36, with early tabes, had been infected at 26. There were numbness and tingling in the hands and a sensation of walking on cotton observed for only a few days before the patient was first seen, Feb. 3, 1916. The first laboratory examination showed: Blood Wassermann reaction, +++; spinal fluid Wassermann reaction, +++ in 0.1 c.c.; cells, 16; globulin, ++. The patient had fifteen intravenous injections of arsphenamin, a total of 6.75 gm., and eight intraspinal injections (Ogilvie). After the first five injections intravenously *ataxia developed,* so intraspinal injections were used. Much mercury was gvien. The last laboratory examination, June 5, 1918, showed: Blood Wassermann reaction, ++; spinal fluid Wassermann reaction, +++ in 1 c.c. only; cells, 0; globulin, negative; colloidal gold curve, 1111000000. There is no ataxia. There are no sensory symptoms. The patient works without interruption. There are no physical findings referable to tabes. The last treatment was given June 1, 1918. The patient has been under observation two years and four months. There has been decided improvement.

Of spastic paralysis there are only two cases. One (Case 12) showed slight improvement but regressed. The other (Case 20) has passed out of observation. With definite and unmistakable paresis, when evidence of parenchymatous degeneration was unmistakable, we have had little experience. Such as we have had has been most discouraging. From this, but chiefly from a study of the literature, we should conclude that the method has not given evidence of efficacy in the treatment of well developed paresis. On this point we quite agree with Sachs. There is no doubt that false hopes have been aroused and that altogether too much was expected of intraspinal treatment in paresis. It would seem that remissions may be secured and the period of usefulness prolonged, but permanent arrests are not to be expected. Incidentally, however, it must be remembered that when the disease process has reached the point at which it has produced the typical clinical picture of paresis, irreparable damage has been done. Paresis, however, may be like other conditions, curable if sufficiently early diagnosis is made, but hopeless if allowed to proceed until all classical signs are present.

SUMMARY

It seems quite apparent that each case of syphilitic involvement of the central nervous system presents an individual problem which must be studied as such with the aid of all available methods, be they clinical or laboratory; that it is difficult to fit all cases into a classification made prior to the recent acquisitions to knowledge, when even the syphilitic causation was not unquestioned; that prognosis and occasionally final diagnosis are not possible until the effect of treatment may be noted; that treatment should be administered only in the light of careful preliminary examination; that it should be modified according to the observed changes in clinical and laboratory findings, and that, though not always necessary, intraspinal injections of arsphenamized serum have been more efficacious in many instances than any other available therapeutic measures. We do not feel, any more than does Swift[9] himself, that the use of arsphenamized serum is necessarily the best method that can ever be devised, that it should be employed to the exclusion of other methods of treatment, nor that it should be employed in all cases.

CONCLUSIONS

Five years' experience with the use of arsphenamized serum shows that:

1. Properly employed, it is not in any sense dangerous.
2. Excellent evidence of its efficacy is offered by the patients who repeatedly endure the painful though harmless reactions which frequently follow intraspinal injections.
3. Little or nothing can be expected in fully developed paresis.
4. Much advantage is derived in many cases of tabes dorsalis and syphilitic meningitis when other methods have proved inefficient.
5. The results of the laboratory examinations of the blood and particularly of the spinal fluid must be considered as an integral part of the clinical picture, both in the diagnosis and in the direction of treatment.
6. The improvement in the satisfactory cases has been so definitely consequent on active treatment, and the ground gained over a period of years has been held so well in spite of the lack of recent treatment, that it cannot be explained as a coincident remission in the progress of the disease.[10]
7. The method is a distinct addition to our therapeutic armamentarium.

ABSTRACT OF DISCUSSION

Dr. J. A. Fordyce, New York: The necessity exists for a more efficient method of preventing neurosyphilis as well as for the treatment of it. A negative spinal fluid after the other criteria of cure have been established insures the patient against the development of neurosyphilis. Early syphilis properly treated and controlled by serology of blood and fluid is the best prophylactic measure. Assuming that the nervous system is infected in florid syphilis, its early recognition is imperative, as at this time a cure can be effected in a comparatively short time and the later degenerative stages of the infection prevented.

The observation of twenty groups of familial and conjugal syphilis, comprising about fifty cases, with the experimental work of Nichols, Reasoner, Noguchi and others, strongly support the theory that a strain of spirochetes has been evolved which has a highly invasive power and which may involve the nervous system in the first months of the infection and during or before the administration of arsphenamin and mercury given in the most intensive manner. Convexity or basilar meningitis or cord meningitis yields slowly or not at all to the continued use of remedies intravenously or intramuscularly.

Early syphilitic meningitis is one of the urgent indications for intraspinal therapy. Syphilis of the nervous system of short duration responds to treatment much more promptly than cases of longer duration and offers a more favorable prognosis. A pure type of arterial syphilis of the brain or cord occurs with negative serology or with an excess of globulin only. In such cases intraspinal injections are not indicated, the condition being more readily influenced by the iodids, mercury and arsphenamin intravenously. Disseminated or localized types of cerebrospinal syphilis, often of obscure symptomatology with positive fluid findings which do not yield to treatment administered by the ordinary channels, yield rapidly and permanently to intraspinal treatment.

In optic atrophy with the preservation of a certain amount of vision and with fluid findings indicating meningitis, treatment intraspinally is the best procedure and usually arrests the progress of the atrophy with preservation of vision as in the beginning of treatment.

I have records of nearly fifty cases of various types of neurosyphilis in which the serology of the blood and spinal fluid have become negative and have remained so during varying periods of observation of from two months to three years. The majority of these patients have been completely relieved of their distressing symptoms and have resumed their professional work and occupations. As an additional argument in favor of the method in question, it should be borne in mind that all other therapeutic procedures had been employed without result.

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[9] Swift, H. F.: Am. Jour. Syphilis, 1917, 1, 524.

[10] This is well illustrated in Cases 1, 2, 3, 4, 6, 9 and 15, in which the patients have been under supervision for from three to five years.

PERFORATING ULCER OF THE HARD PALATE RESEMBLING TERTIARY SYPHILIS

BUT DUE TO A FUSOSPIRILLARY INVASION (SO-CALLED VINCENT'S ANGINA)*

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A man, aged 47, consulted one of us because of an ulcer, which had made its appearance on the roof of his mouth. His previous history was in all respects negative. One day he noticed a little soreness on the roof of his mouth, and a small white spot, to which he paid no particular attention, until within a few days an ulcer developed, gradually becoming larger and more painful. Despite his negative history, a syphilitic condition was suggested by several physicians.

Physical examination revealed slight anisocoria, rather marked oral sepsis and gingivitis, especially around the posterior molars, an unpleasant fetid odor to the breath, and a well defined punched-out ulcer, about the size of a dime, situated on the hard palate, covered with a thick, creamy, easily removed exudate, and surrounded by a deep red, somewhat indurated areola. The base of the ulcer bled easily. The clinical picture certainly justified the suspicion of syphilis, a view concurred in by a nose and throat specialist. The patient was afebrile and not sick.

Laboratory studies revealed a normal blood picture, and the Wassermann reaction was negative with each of three different sets of reagents. Smears made from the exudate showed enormous numbers of *B. fusiformis*, and many coarse, readily stained spirochetes, presenting from five to eight wide undulations. A diagnosis of so-called Vincent's angina was made, and the lesion promptly healed in a few days under treatment with dichloramin-T and local applications of concentrated arsphenamin solutions. There has been no recurrence.

BRIEF HISTORICAL SUMMARY

Since the discovery and recognition of diphtheria in 1882 by Klebs, there has been noted with increasing frequency, the occurrence of diphtheria-like lesions on the tonsils and elsewhere in the mouth, apparently caused by a fusiform bacillus, in association with a spirochete of large size. Though the organisms were first described in 1883 by Miller, an American dentist, who further noted their occurrence in both normal and dirty mouths, the first article of real moment came from Plaut in 1894. Between the years 1896 and 1905, Vincent wrote a number of very comprehensive articles on both the organisms and the associated clinical findings, as a result of which the condition came to be called Vincent's angina. A full discussion of the question of priority is to be found in Eichmeyer's excellent monograph.[1] During the last ten years, scattered articles have appeared, but no especial interest was attached to a presumably uncommon malady, until a very high incidence of an ulcerative stomatitis was observed among British and French troops. The disease broke out sporadically, was usually preceded by a sore throat, and became so common that it constituted, according to Bouty,[2] 23 per cent. of all throat infections. It was soon found that the lesions were invariably associated with a mixed invasion of fusiform bacilli and spirochetes, and the condition was commonly referred to as "trench mouth," "trench throat" or "trench gums." Probably the condition has no association with trench life as such, but its dissemination is favored by the collection in camps of large numbers of young men. As a minor cause of temporary or often prolonged invalidism, the malady ranks high, and is therefore worthy of much more attention at the hands of both civil and military practitioners. Already, careful studies by McClintock,[3] McKinstry[4] and others, of so-called "normal mouths" have proved that there are many healthy carriers. This form of stomatitis may be very infectious in type, as was shown by the occurrence of more than 200 cases within two days among 800 prisoners in one of the German camps. The disease apparently has a universal distribution, and it is not at all selective as to sex, social conditions, occupation or season. Finally, though poor resistance, the promiscuous use of pipes, tooth brushes, etc., excessive smoking and climatic conditions have all been regarded as possible predisposing causes, it has been established beyond all doubt that one condition above all others exerts an influence favorable for the development of this type of ulcerative stomatitis, namely, oral sepsis, peridental gingivitis or pyorrhea.

DEFINITION OF THE DISEASE

As generally employed, the term "Vincent's angina" usually refers to an ulcerative lesion of one or both tonsils and due, apparently, to a fusospirillary invasion. There is little doubt that this is the commonest type encountered clinically, one often mistaken for diphtheria or syphilis. Vincent's original classification of the lesions has usually been accepted, according to which the cases fall into one of two groups, either one of which may run its course in a few days or persist for weeks.

A. The superficial, pseudomembranous or diphtheroid form, in which a thin, grayish white film usually starts over one tonsil and gradually spreads, often over a wide area. As a rule the membrane is easily removed, though not *en masse*, leaving a red, bleeding base and a shallow ulceration. There is generally an associated diffuse pharyngitis.

B. The ulcerative, and more common form, in which there is deep tissue necrosis, covered by a thick, creamy, yellowish or gray exudate, which comes away easily and again leaves a raw, granular, bleeding base. This leads to the formation of crater-like ulcers, with irregular, somewhat indurated and undermined edges. Both forms show a tendency to be unilateral.

This description of the lesions answers well enough. We now know, however, that ulcerative lesions of this type may occur in many places, including various portions of the mouth, the bronchi, gastro-intestinal tract, and, in a few instances, the genitalia, causing there the so-called "fourth venereal disease" closely simulating chancroid. Campbell and Dyas[5] give the following definition: "Vincent's angina is an infectious disease of the mucous membrane of the mouth, throat, bronchi and prepuce." The term "angina" (from the Latin *angere*, to choke) is quite loosely and incorrectly used in medical writings generally, and should be applied only to those diseases or conditions characterized by spasmodic symptoms of suffocation or choking, and hence particularly to diseases of the throat. The term "Vincent's angina," therefore, should be restricted to a peculiar type of throat or mouth affection, due to an unusual and possibly specific bacterial infection. It should be noted in passing that attacks of choking or suffocation in these cases are most uncommon. The term "ulcerative stomatitis" is not comprehensive enough, and, of course, does not convey any notion as to the etiology, since infective disorders of the buccal cavity and pharynx include a great number of conditions, due to different micro-organisms. As a result of the more recent studies, a far better conception is the recognition of numerous types of mouth infection, all due apparently to the same variety of invasion, *and to limit the term "Vincent's angina" to such infections of the tonsils proper*. One is inclined to agree with Bowman,[6] who feels that we should speak rather of Vincent's disease, under which are included all forms of this peculiar fusospirillary ulceration, no matter where located.

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* Read before the Section on Practice of Medicine at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

[1] Eichmeyer: Ergebn. d. allg. Path. u. path. Anat., 1904, **10**, 106.

[2] Bouty: Brit. Med. Jour., 1917, **2**, 685.

[3] McClintock: Am. Jour. Med. Sc., 1917, **153**, 256.

[4] McKinstry: Practitioner, London, 1917, **99**, 507.

[5] Campbell, A. R., and Dyas, A. D.: Epidemic Ulceromembranous Stomatitis (Vincent's Angina) Affecting Troops, The Journal A. M. A., June 2, 1917, p. 1596.

CLINICAL VARIETIES

Leaving aside, at this time, the unusual bronchial and genital forms of the disease, one may easily tabulate the various types encountered in the buccal cavity. Two classifications have been advanced:

1. McKinstry groups the cases in the order of the frequency of their occurrence in his experience, as: (*a*) affections of the gums; (*b*) affections of the tonsils (Vincent's angina), and (*c*) affections of the mucous membranes of the buccal cavity. This classification possesses the valuable point of emphasizing one most significant fact, namely, that the commonest primary form of the disease is an ulcerative, peridental gingivitis, especially common around the lower incisors, posterior lower molars, crowned teeth, and between irregular ones. In these cases the only possible confusing condition is pyorrhea, from which it can be easily diagnosed, according to McKinstry, first, by the character and appearance of the ulceration, secondly, by the association of fetor and considerable gingival pain and bleeding, and, finally, by the absence of pus between the tooth and the gum. J. S. Marshall of Chicago thus describes the condition:

> The clinical characteristics are the formation of ulcers at some point of injury, which at first appear in no wise different from the ordinary form of a localized ulcerative stomatitis, but which, after the lapse of twenty-four to forty-eight hours, begin to spread rapidly along the margins of the gingivae in all directions, involving both jaws, and sometimes extending to the hard palate and the floor of the mouth. The margins of the gums assume a general ulcerative condition, accompanied by swelling, redness and considerable congestion of the parts, which bleed easily. Later they become covered with a dirty-white or yellowish-white pellicle or membrane—somewhat resembling the thrush film—which sloughs off after a day or two, destroying the festoons and leaving a ragged surface. The denuded surface is very red and covered with coarse granulations, which bleed upon the slightest provocation. The gums are loosened from the necks of the teeth, and the borders of the alveolar processes are exposed. Pus mixed with blood exudes from the inflamed tissue about the necks of the teeth. The breath and excretions are very fetid, and salivation is profuse. In these respects the symptoms resemble mercurial ptyalism. The ulcerated surfaces are exceedingly sensitive, and motions of the tongue and lips on this account are very painful. Food is taken with difficulty. Accompanying the local manifestations there is a general febrile condition, temperature ranging from 100 to 101 F., thirst, loss of appetite and general malaise, sleeplessness, and irritability of temper.

McKinstry is quite convinced that this form of gingivitis is always the primary lesion, from which extension to the tonsils, palate, etc., occur.

2. Campbell and Dyas, in an analysis of 129 cases arranged in the order of their incidence, divide their cases thus: Type I, tonsillar cases; Type II, ulcers on the lower jaw behind the last molar; Type III, gingival cases, and Type IV, general infection of the buccal cavity.

There is, perhaps, no essential difference between the two groupings, and variations in the occurrence of the tonsillar or gingival form probably depend in great part on the stage at which the patient is first seen. Obviously, careful observation of the gums and more consistent attempts to rule out this condition from true pyorrhea are strongly needed. The disease is seldom found in a clean mouth, that is, one in which the gingivae are normal.

SYMPTOMATOLOGY

Objectively one notes:

1. Insignificance, as a rule, of constitutional disturbances. The patient is not very ill.
2. Absence of fever, the temperature rarely rising over from 100 to 101.
3. Heavy and offensive breath.
4. Enlargement of the cervical and submaxillary glands, as a rule moderately. They are tender and never suppurate.
5. The lesions proper.
6. Swollen, spongy and bleeding gums, suggestive of scurvy.

Subjectively, the patient complains of:

1. Extremely bad taste in the mouth.
2. Tenderness of the gums, so that the use of a tooth brush is impossible, and mastication is so painful as to preclude eating.
3. Pain on swallowing.
4. Looseness of the teeth, with salivation, which is common, resembling mercurial ptyalism.
5. Anorexia.
6. Joint pains, frequently.
7. Lassitude—"lack of go."
8. "The most serious constitutional symptom and one always present when the teeth and gums are affected is severe depression."[6]

LABORATORY FINDINGS

1. Blood cultures are uniformly negative.
2. The Wassermann reaction in all cases of Vincent's disease is negative in nonsyphilitic patients. The presence of a positive reaction does not exclude Vincent's disease, and the experience has shown that patients with a syphilitic history, undergoing mercurial treatment, are especially prone to this form of mouth lesion.
3. The leukocytes are rarely increased over 10,000: anemia does not develop in the majority of the cases.
4. A transient albuminuria is common in the more severe cases.
5. Smears from the lesions show the characteristic organisms—a fusiform bacillus and a coarse spirochete, in association with numerous other organisms.
6. Dark field illumination aids greatly in eliminating the *Spirochaeta pallida*.

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[6] Bowman, F. B.: Proc. Roy. Soc. Med., 1915, **9**, Part 2, p. 51; Lancet, London, 1917, **2**, 536; Brit. Med. Jour., 1916, **1**, 373.

COURSE OF THE DISEASE

Most cases run a benign course, clearing up in from a few days to one or two weeks. Recurrences are common, especially in the primary gingival cases, inadequately treated. In some instances, however, the disease may assume a much more virulent form, accompanied by high fever, bleeding from mucous membranes generally, extensive purpura and profound prostration. A number of cases are now on record occurring in civilian and military practice that have terminated fatally. "The most destructive and fatal forms of gangrenous necrosis in which these organisms are found often occur in subjects with leukemia or one of the other essential blood diseases." [7]

THE BACTERIOLOGY OF VINCENT'S DISEASE

The examination of smears made directly from an ulcer always shows a great variety of organisms, but two in particular tend to predominate. These are:

1. The *Bacillus fusiformis*, first noted by Vincent in cases of hospital gangrene. The bacillus is from 5 to 10 microns long, is slightly curved, pointed at the ends, and thickest in the middle, where there is often a single transverse, colorless band, giving the appearance of two prisms with their bases opposed. The organisms are often arranged in pairs. The bacillus is sometimes beaded, owing to the occurrence of a number of granules in the protoplasm. It is anaerobic, nonmotile, according to most observers, gram-negative, does not form spores, and stains readily with basic anilin dyes and weak solutions (25 per cent.) of carbolfuchsin. In cultures as well as in smears, the bacillus may present marked morphologic variations; small forms, comma-shaped and, if end to end, simulating a spirillum, may be seen side by side with delicate rods or threads as long as from 50 to 100 microns.

2. The spirochetes which invariably accompany these fusiform bacilli are slender, of fairly large size, pointed at the ends, gram-negative, and stain only feebly with ordinary dyes, though much more readily than does the *Spirochaeta pallida*. They show on an average from five to eight wide, irregular convolutions. The existence of an undulating membrane and absence of flagella are mooted points, which must be settled if the generic term "spirochete" is correct. Seen by dark field illumination, they are very actively motile, lashing around with a whiplike or rotary motion, and not the longitudinal corkscrew-like movement of the *Spirochaeta pallida*. They are thicker than the *Spirochaeta pallida*, appear yellowish rather than white, and there is no geometric regularity to the spirals. The organism is readily distinguished from the *S. dentium* and *S. refringens*. Like the bacillus, it is anaerobic.

Cultivation and Identity of the Organisms.—Briefly, the cultivation of these anaerobes has been found extremely difficult by most observers. It is doubtful if the spirochete has ever been isolated in pure form and kept alive over more than two or three generations. The bacillus grows best in fluid mediums in the presence of tissue, and a small percentage of sugar (0.5 per cent.). Krumwiede and Pratt[8] assert that blood or serum is also necessary for satisfactory growth. In serum-glucose broth a flocculent growth occurs at the bottom of the tube, the upper layers remaining clear. The organisms form indol readily. Petri dish colonies are small, but slightly elevated, gray, thin, translucent and show festooned margins.

It has been noted that the relative numbers of the organisms under discussion vary much with the type and stage of the disease. Thus, bacilli tend to predominate in the superficial layers of the ulcer, and spirochetes are relatively few. When the slough is fully formed, the spirochetes occur in greater numbers: moreover, at this stage, one frequently encounters bacilli apparently linked to spirochetes. In 1911, Ruth Tunnicliff[9] grew the bacilli under anaerobic conditions, and on the subsequent transfer to Loeffler's blood serum, at room temperature, she noted that the bacilli tended to lose their pointed ends and become filamentous or spirillary in form. Since then, not a few have held that the two forms seen in lesions are only different stages in the life history of one organism. Many consider the two organisms quite distinct and always growing in symbiosis. Greeley[10] has recently stated that the spirochetes and fusiform bacilli are one and the same organism: "This belief is wellnigh universal among authorities." The evidence for such a positive statement is by no means conclusive. Since the days of Cohn, Zopf, Lister and Billroth, the whole question of the pleomorphism of bacteria has been hotly discussed. Now it is quite generally agreed that the majority of forms are uniform, showing but one type throughout their life history. Admitted exceptions occur, but they are certainly rare. As a result of long studies, Krumwiede and Pratt state quite as positively that the two organisms are in no sense related. According to them, typical spirochetes, as seen in the original smear, are never encountered in cultures; dark field studies of cultures have never shown forms that resemble the original spirochetes; spirochetes can be kept alive in serum, while the bacilli die out. And, finally, if pure cultures of the *B. fusiformis* are repeatedly transplanted to the same medium, they show no morphologic changes.

Specificity of the Organisms.—Inoculation experiments from both the original material and pure cultures have been singularly unproductive of the characteristic lesions in the hands of most observers. It has not mattered how the inoculations are made, whether into artificial wounds, subcutaneously, or intravenously. These results may possibly be explained on the assumption that, like the tetanus bacillus, ancillary organisms or damaged tissues must be present before the *B. fusiformis* or the spirochete, or both, in symbiosis, can produce pathologic changes. As the identity, therefore, of the two organisms is undecided, and since the postulates of Koch have in no sense been fulfilled, the crucial demonstration that these organisms are the specific cause of Vincent's disease is at present lacking. This much we do know:

1. In all of the lesions under discussion the organisms are present, as a rule in enormous numbers, and often virtually in pure culture. The severer the infection, the greater the number of organisms.

2. There is positive evidence both as to the infectiousness and the contagiousness of Vincent's disease.

3. Healing of the lesions goes on parallel with the disappearance of the organism. When complete, no organisms remain.

"These facts may be taken as adequate proof that if the organisms are not the only, they are certainly an essential factor in the causation of these lesions, which constitute a clinical picture distinctive enough to be considered an entity and so regarded, by the consensus of present opinion."

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[7] Barnes: Medical Clinics of North America, January, 1918, p. 997.

[8] Krumwiede and Pratt: Jour. Infect. Dis., 1913, 13, 439.

[9] Tunnicliff, Ruth: Jour. Infect. Dis., April, 1911.

[10] Greeley: Am. Jour. Med. Sc., 1918, 155, 742.

THE DIAGNOSIS OF VINCENT'S DISEASE

Though infrequently mistaken for other conditions, the diagnosis of Vincent's disease, and particularly of Vincent's angina, is relatively easy and should present no difficulties. The essential points always to be borne in mind are:

1. The usual disproportion between the constitutional symptoms and the appearance of the lesions. "The patient should be sicker than he is."
2. The clinical history.
3. The negative laboratory findings with the one exception of smears made from the ulcerative lesion.

The other ulceromembranous lesions of the mouth and throat that require consideration may be briefly enumerated:

1. *Diphtheria.*—In this condition the constitutional reaction is usually outspoken. The throat is generally affected on both sides; dysphagia is not so pronounced, and a cervical adenitis is less common; when present, the glands are not so tender. The membrane is much tougher and harder to remove, and may come away en masse. Finally, throat smears show the characteristic Klebs-Lœffler bacilli, and cultures are positive. Vincent's organisms may coexist with those of diphtheria, but should give rise to no confusion. On the other hand, diphtheria bacilli in any considerable number are invariably absent from the mouth lesions of Vincent's disease. It is claimed that morphologically the organisms of diphtheria and Vincent's disease may resemble each other. This is a remote possibility; in case of doubt, the use of Gram's stain should suffice, since the *B. fusiformis* is gram-negative, the *B. diphtheriae*, positive.

2. *Syphilis.*—Vincent's disease undoubtedly may be confused with syphilis, as was true in the present case. Moreover, it may be and probably often is superimposed on a syphilitic infection of the mouth or throat. Throughout the literature, scattered contributions are found in which it is maintained that in uncomplicated cases of "Vincent's angina" the Wassermann reaction is often found to be positive. This view is held by St. Clair Thomson, Much, Sobenheim[11] and others. Critical analysis of the cases thus reported shows that the statement rests on decidedly flimsy evidence. Those who have had the greatest experience agree that though a positive Wassermann reaction does not exclude Vincent's disease, and though in some isolated cases neither the clinical appearances nor the microscopic findings are sufficient to establish a definite diagnosis with certainty, none the less serologic findings are invariably negative in uncomplicated cases of Vincent's disease. Recently Taylor and McKinstry[12] have conduced studies to clinch this point. From a large number of cases of Vincent's disease, fifty-five were chosen at random; fifty-three gave absolutely negative Wassermann reactions, while two were positive. Both of these patients admitted a primary infection. The authors conclude that "the prevailing belief in the occurrence of a positive Wassermann reaction in Vincent's angina has no foundation in fact, and that the two conditions can be differentiated with absolute certainty by the application of bacteriologic and serologic methods. When the Wassermann reaction is positive in cases of Vincent's angina, then a double infection exists, either as a coincident syphilitic and Vincent's infection, or as the occurrence of Vincent's angina in a subject with latent syphilis."

3. *Tonsillitis.*—The usual variety of tonsillitis is easily ruled out by the appearance of the lesions, follicular in type, the marked constitutional symptoms, leukocytosis and tonsillar smears.

TREATMENT

The condition usually responds readily to treatment, the essential points of which are:

1. "A good dentist is one of the best therapeutic measures." The care of the mouth is essential.

2. Local applications, of many kinds, have been recommended, such as iodin, silver nitrate (10 per cent.), chromic acid (5 per cent.), zinc sulphate, and numerous others. Based on sound reasoning, Emrys-Roberts[13] devised a lotion consisting of hydrogen peroxid, 5 fluidounces; wine of ipecac, 3 drams; glycerin, 5 drams, and water, sufficient to make 8 ounces.

To this some have made the further addition of liquor potassii arsenitis (Fowler's solution). The ulcers are swabbed with this solution two or three times a day, and all patients, whether the gums are affected or not, are instructed to put from 10 to 15 drops on a tooth brush, twice a day, and to brush the teeth and gums vigorously. Improvement and cure are rapid.

There is abundant evidence that the best drug to employ is arsphenamin, especially in the severer cases showing deep tissue necrosis. Ehrlich[14] himself, in 1910, noted rapid healing in a case after one intravenous injection of arsphenamin. Many have since noted similar results. Just as striking are the prompt cures effected by the local application of arsphenamin solutions, or suspensions in glycerin, two or three times daily.

3. General measures should include strict isolation, a high caloric diet in liquid or semisolid form, sodium cacodylate injections daily, and such symptomatic therapy as the individual case requires. All authorities warn against the use of mercury for syphilis associated with Vincent's disease, before the local lesion is cured. Mercury undoubtedly tends not only to increase the incidence of Vincent's disease, but greatly to prolong its cure.[15]

SUMMARY AND CONCLUSIONS

Evidence has accumulated in the last few years to show that ulcerative lesions of the mouth and throat of a nonsyphilitic nature are extraordinarily common among the Allied troops. These conditions are the cause of much unnecessary and expensive invalidism; they are probably wholly preventable and hence not to be tolerated. Military and civil practitioners should constantly bear in mind the following well established points:

1. Vincent's disease is in all likelihood a primary peridental gingivitis, occurring frequently in certain particular areas, liable to develop anywhere in ill kept mouths, associated with characteristic gum lesions, and

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[11] Sobenheim: Arch. f. Laryngol. u. Rhinol., 1909, **21**, 5.

[12] Taylor, F. E., and McKinstry, W. H.: Brit. Med. Jour., 1917, **1**, 421; Proc. Roy. Soc. Med., 1917, **10**, No. 3; Brit. Med. Jour., 1918, **1**, 82.

[13] Emrys-Roberts: Brit. Med. Jour., 1917, **2**, 359.

[14] Ehrlich: Münch. med. Wchnschr., 1910, **57**, 2268.

[15] In addition to the references already given, the following will be found of interest:
Vincent: Deutsch. med. Wchnschr., 1894, **99**, 922.
Saverio: Arch. ital. di oto. rinol. e laringol., 1910, **21**, 177.

capable of spreading to any part of the buccal cavity or throat. The disease is both infectious and contagious.

2. The lesions most often seen clinically are ulcerations of the tonsils, to which the name "Vincent's angina" should be restricted.

3. No matter where located, the lesions of Vincent's disease are caused by the activities of the *B. fusiformis* and an associated spirochete. Their specificity is as yet unsettled. It is quite likely that they normally are symbiotic saprophytes, capable under certain conditions of causing pathologic changes.

4. The diagnosis of Vincent's disease from diphtheria and syphilis is simple. Smears from the lesions usually suffice.

5. Cases of uncomplicated Vincent's disease invariably give a negative Wassermann reaction.

6. The local application of concentrated solutions of arsphenamin is regarded as the best form of therapy. Most cases clear up within a few days.

7. Prophylaxis is better than cure. Oral sepsis is inexcusable.

ABSTRACT OF DISCUSSION

Dr. W. H. Marshall, Flint, Mich.: During 1916 and 1917, while with the British forces, I saw many of these cases. Dr. Bowman of Toronto found an *Ameba buccalis* that was symbiotic with the organisms described by Dr. Miller. In some forty cases he also found this ameba with the spirillum, and, based on these findings, we used wine of ipecac, half an ounce, for its action on the amebas, liquor potassii arsenitis (Fowler's solution), half an ounce, and a dram of glycerin locally in the mouth, applying it with a cotton swab two or three times a day. Our cases cleared up rapidly with that simple form of therapy.

Dr. Frank J. Sladen, Detroit: There are three points of interest emphasizing the importance of Dr. Miller's paper. First, Vincent's angina is a more common condition than is recognized. The best dentists see it frequently, and believe it is within their domain. The majority of cases are of the membranous type, recovering under simple mouth and throat measures, a frequent reason for the lack of effort leading to recognition. The occasional experience of trying to control an advanced, serious case impresses on one the advantage of early institution of proper measures. Second, the problems of conflicting diagnoses do not always seem as easy as Dr. Miller presented them. The membranous stage has its relation to diphtheria. Such a diphtheritic membrane has been the basis of uselessly exposing a patient to the expensive and sensitizing antidiphtheric serum. The difficulty, after failure to distinguish the differences in the membrane, lies in the fact that the laboratory diagnosis of diphtheria depends on cultural efforts rather than on the smear. The organism of Vincent's angina is poorly viable and usually in this way late negative results are obtained before the telltale smears are searched. Third, in relation to syphilis: At the ulcer stage there is similarity in the location and character of the ulcer and in the residual deforming scars. The latter may be very misleading. It is interesting also that a spirillum is associated though easily distinguished from the *Spirochaeta pallida*. In the face of a negative Wassermann reaction, and no other syphilitic stigmata, there is frequently quick response to arsphenamin. Arsenical preparations are indicated. Ready recovery usually occurs, but I recently dealt with a fatal case which had already advanced beyond control of local measures, a case in which the larynx was involved, with a bronchopneumonia. Intravenous injections of arsphenamin were of no avail. Earlier recognition might have changed the outcome.

Dr. Henry A. Christian, Boston: Two points in connection with this condition are of interest. The first is this striking similarity of some of the cases to a syphilitic lesion, and the possibility of some old cases of perforation of the palate or the septum of the nose in which the Wassermann is negative and in which there is no history of syphilis and no sign of syphilis being of this origin. The other point of interest is whether the organisms found are the cause of the condition. I have always felt very skeptical about that. The organisms are easily found, but are they the cause of the lesions? The reason for my skepticism is this: Usually, when you get chronic throat conditions from any cause, with superficial ulceration, you find these organisms. The organisms are inhabitants of the mouth under normal conditions; at least similar organisms are found in the mouth. In a number of cases of advanced nephritis you get ulcerative conditions in the mouth, and the laboratory reports the finding of the Vincent's organism in these cases.

Sometimes, in treating syphilis, you are unfortunate enough to produce a mercurial stomatitis, and then you find these organisms in those cases. In noma in children the destructive lesions in the mouth show these organisms on the surface and underneath, and it has always been disputed whether these organisms or some streptococcus or some unknown organism is the cause of noma. It seems to me that there is considerable reason for doubting the spirillum and the fusiform organism as being the cause of the condition. They are extremely useful from the viewpoint of the diagnosis, because the finding clears up in your mind whether or not it is diphtheria and whether or not it is syphilis. I think evidence is lacking that they are the definite cause, and, as one speaker has said, he very commonly found amebas. Are amebas the cause? You nearly always find some other bacteria, as streptococci. Are they the cause? Or is there something else which is the cause? From my personal ideas and experience, I do not think that we know.

Dr. Sydney R. Miller, Baltimore: One or two points have been brought up in the discussion to which I would like to refer. First, I had thought and hoped that I had left the distinct impression that the situation was anything but positive with reference to the relation of the organisms in question to the condition of Vincent's angina. There is the greatest doubt in my mind, and I should like it thoroughly understood, that the specificity of these organisms is not yet a proved fact. What we do know is that they occur in these conditions almost exclusively, though it is known that they exist in other ulcerated conditions of the mouth, and may be, indeed, normal mouth inhabitants. It is possible that they become pathogenic under conditions such as are necessary for the tetanus bacilli, requiring both ancillary organisms and local injury before they can assume pathogenic activities. Second, it has been emphasized that possibly the frequency of this condition among soldiers has been brought on in part by vigorous antisyphilitic treatment. It is, apparently, true that the use of mercury, in that it favors stomatitis, predisposes to the condition, and it is certainly true that mercury should not be used when Vincent's angina exists. It would seem to me that in view of the increased frequency of these conditions of Vincent's infection, in view of the fact that Ellermann has apparently been able to reproduce the lesions in tissues previously damaged, that it is at least safe to assume for the present that these organisms are potentially quite capable of producing much harm and temporary invalidism to men, both in civil life and under military surroundings.

There are so many facts that point to the possible seat of the trouble around the teeth that it should be every one's duty to watch for the earliest signs of infection.

Milk and the Children.—It is the duty now of every individual community to see that its children have milk of good quality and in sufficient amount to assure their normal development. To do this the price of milk must be controlled or fixed, and the milk supply to infants and children carefully safeguarded. The malnutrition of our children was, even before 1914, a serious national problem and one demanding urgent attention. Poverty and ignorance of dietary essentials have been ever-present factors in the malnutrition of the young and war conditions cannot fail to increase the gravity of the situation and the difficulties of maintaining the health of the Nation.—Bulletin, Federal Children's Bureau.

EFFECT OF PROLONGED BILE DRAINAGE IN THE CURE OF SUBACUTE AND CHRONIC PANCREATITIS *

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The object of the present small investigation was to discover, so far as was possible, the effect of bile drainage on that swelling of the pancreas that we loosely call pancreatitis in such patients as recover and regain some degree of their previous health. The only criterion of judgment available in all but one or two of the patients was the recurrence or the absence of symptoms similar to those for which the operation had been done. For the purposes of the investigation, all case reports were taken in which the operator had set down the fact that the pancreas was to palpation hard, enlarged, nodular, swollen, etc., whether infection of the bile tract or gallstones was present or not. It is recognized that, in making such a palpatory diagnosis of pancreatitis, one must reckon with the personal equation to a certain extent, and, to that extent, naturally, with a margin of error. Nevertheless, when the operations have been done by men of recognized ability, known to be conservative in their attitude, as was the case in the present series, such a margin of error is certainly a small one. In the second place, it should be premised that the cases of this series were all of the subacute or chronic recurring type of mild grade, together with a few acute cases in which the patients recovered. The type is familiar to the operating surgeon. During an operation undertaken usually for gallstones, which may or may not be present, examination reveals a variable degree of thickening and hardening of the pancreas. If gallstones are present, these are removed, bile drainage is instituted, and the surgeon from experience knows that the pancreatitis may be left to get well of itself. Besides, he usually feels that the bile drainage alone is proper treatment for the pancreatitis. If, on the other hand, gallstones or other possible causes are not found, he very properly drains the bile all the same, usually by a cholecystostomy. Recently, Dr. Judd[1] has said that a cholecystectomy is more certain of curing the pancreatitis than a cholecystostomy.

In the pancreatitis cases of the Royal Victoria Hospital, whose records I have gone over in this connection, there were very few cholecystectomies done. Up to lately, at any rate, it has been felt, in general, that if pancreatitis were present, and the gallbladder was not irreparably diseased, it was safer to conserve the gallbladder as a sort of safety valve to forestall undue rises of pressure in the biliary passages, or to serve for a short-circuiting operation if subsequent lesions in the common duct or the pancreas should ever render that necessary. Consequently, in our hospital, a tube has usually been placed in the gallbladder, and the bile drained for a variable time, in cases of pancreatitis associated with gallstones.

STATISTICAL RECORD OF OPERATIONS

Out of a total of a little more than 500 case records of operations on the bile passages, I find the pancreas specifically mentioned in 105 as being enlarged, hard, nodular, etc. Follow-up letters were written to the 105 patients and forty-one replies were received, of which only thirty-three were available for proper analysis. These thirty-three cases, then, I have tried to analyze with regard to the effect of bile drainage on the recurrence of symptoms.

Such an analysis immediately meets one difficulty and is open to one objection in particular. So many of the patients suffered coincidently from gallstones that one might reasonably inquire whether the recurrence or the persistence of symptoms might not be due to recurrence of gallstones or of cholecystitis, or to adhesions rather than to that of pancreatitis. In the absence of relaparotomies, such an objection cannot positively be set aside. Nevertheless, I have considered it justifiable to assume that a properly conducted operation for gallstones is but very rarely followed by recurrence; and, consequently, that, when a letter declares that the patient suffers from symptoms similar to those of the preoperative attacks, such symptoms are presumably due to the coincident pancreatitis.

There were twenty-four cases of cholecystostomy. I have divided these as to duration of drainage into periods. Of these fifteen had a tube in the gallbladder for two weeks or less. Of this number, only three profess themselves cured; five say they are improved, some very much so, but they still have a good deal of pain in the pit of the stomach and the upper abdomen generally; in three the pain is accompanied by nausea or vomiting, coming on irregularly, at a variable time after food; and, finally, seven say they still suffer from the same trouble as before operation, that is, attacks of epigastric pain, sometimes with vomiting, and, in two instances, with jaundice. So only three of fifteen were cured, and seven have persisting trouble, while five were improved only.

There were four cases in which bile drainage was kept up more than two weeks, but not more than three weeks. Of these, three say they are cured and one is much improved, although still subject to epigastric pain at intervals that are gradually growing longer.

Finally, there were five cases in which the bile was drained longer than twenty-one days, that is, 28, 40, 42, 44 and 59 days respectively. The patients all say they are quite cured. The most recent one was operated on a year ago, the others six, eight, eight and sixteen years ago. One of these, who was operated on for gallstones ten years ago, and in whom no stones or other lesions of the bile tract were found, while the pancreas was diffusely enlarged to twice its normal size and also hardened, had the wound closed without bile drainage or other therapeutic measure. She had numerous and somewhat severe attacks of epigastric pain, sometimes with light jaundice, during the next two years, and was finally reopened, when the pancreas was found again to be the only organ involved and slightly larger than before. This time a tube was put in the gallbladder, the bile was drained for fifty-nine days, and since then, eight years ago, she has been entirely free from her old pain.

The cholecystectomy cases number only four. Of these three write that they are cured. These drained bile through a tube in the common duct for seven, twelve and twenty-two days respectively. In the fourth case, the abdomen was closed. No drain was inserted, and this patient complains of the same trouble as before operation.

In three patients, all operated on about ten years ago, in whom operation revealed pancreatitis without

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* Read before the Section on Surgery, General and Abdominal, at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

[1] Judd, E. S.: Ann. Surg., 1918, 67, 473.

bile tract lesions, and in whom no drainage was instituted, the symptoms continued just as before operation. One of these was cured later, as already related, by bile drainage, for fifty-nine days; another died after three years of "stomach trouble," and a third still complains of constant "indigestion" with pain in the epigastrium and the left side.

Finally in one patient, the mass in the head of the pancreas seems to have been a direct extension of a mass in the pylorus, presumably an ulcer, inasmuch as a gastro-enterostomy gave lasting relief.

GENERAL RESULTS OF TUBE DRAINAGE

While it is perhaps not quite justifiable to draw any far-reaching conclusions on the basis of so small a series of cases, in view of the lack of that exact knowledge which only a relaparotomy can furnish, I feel, nevertheless, that the results recorded are at least suggestive. The general fact stands out clearly enough, that, the shorter the drainage of bile, the more likely to persist were symptoms similar to those complained of before operation, and that when the drainage was prolonged for four weeks or more, all such patients were cured permanently. Whether gallstones were present or not did not seem to make much difference.

I should therefore like to enter a plea for a more prolonged drainage of bile than I believe has hitherto been usual in most clinics. If one is going to leave the gallbladder in, I think a wise plan is to stitch the organ to the parietal peritoneum, leaving the cholecystostomy opening at the level of the rectus sheath, and to refrain from the inturning purse-string stitch, so that the mucosa-lined opening may not close too quickly if the tube is pulled out accidentally.

What is the rationale of bile drainage for pancreatitis?

It used to be thought that such drainage was used chiefly in order to get rid of infection in the bile. But a revival of our knowledge concerning the sphincter at the outlet of the common duct, first described by Oddi, the Italian physiologist, more than thirty years ago, together with the observation that a majority of cases of pancreatic swelling are unassociated with gallstones or infection in the common duct, has shown us that the keynote in the treatment of pancreatitis is not so much mere drainage of possibly infected bile as it is reduction and prevention of rises of pressure in the biliary system. The sphincter, it would seem, may without difficulty be provoked into spasm under certain as yet not well known conditions; and the consequent rise of pressure in the bile tract may force bile into the pancreas and so set up a pancreatitis of varying degrees of severity.[2] Consequently, if pancreatitis has already been caused, our chief concern after removing gallstones, if these are present, must be to provide a safety valve against any rise in bile pressure, and so avoid any further occasion for retroinjection of bile into the pancreas and aggravation of the lesion. Whereupon, we may trust Dame Nature to repair the damage already done in the pancreas!

But to repair such damage, consisting as it does frequently of multiple microscopic necroses with edema and possibly some hemorrhage, much time is necessary. I am inclined to place that time at three weeks at least, and if the pancreas is much affected, at two months or more.

One question will naturally occur to operators. If it is true that the sphincter of the common duct by its resistance may cause retroinjection of bile into the pancreas, and if the gallbladder is a sort of reservoir or safety valve protecting against sudden or extreme rises in bile pressure, why should not a cholecystectomy very quickly cause an increased pressure in the common duct, and so be followed more often than not by the entrance of bile into the pancreatic duct and by pancreatitis? From the work of Dr. Judd, we know that the contrary is the case. In his opinion, a cholecystectomy reduces ultimately the pressure in the common duct, and so conduces to the cure of pancreatitis.

I am sure Dr. Judd's conclusion must be correct, based as it is on a large and carefully collated experience. But I feel that the fact may be preferably explained otherwise. A short series of experiments on only three dogs, lately carried out with the object of measuring the pressure in the common duct before and after cholecystectomy, has shown that the pressure was not reduced in the common duct, at least inside of two months. By that I mean that the resisting power of Oddi's sphincter was found to be unaffected by the cholecystectomy. I think therefore that we must look for other reasons for the fact that pancreatitis is best cured by removal of the gallbladder. Here one is reduced to theorizing. I believe we must ascribe some effect to the postoperative care, especially the fluid diet at short intervals. We know that the arrival of food in the duodenum causes an opening of the sphincter and a flow of bile into the intestine. Therefore, two-hourly feedings would tend to prevent any accumulation of bile in the common duct. Jaboulay was able to cure a biliary fistula by the simple expedient of feeding his patient every two hours, day and night.

On the other hand, if I may be allowed to venture a hypothesis as yet unsupported by much evidence, I should be inclined to say that the removal of the gallbladder very possibly brings about a permanent diminution of bile pressure in the common duct, by virtue of removing the only muscular force of any power that is present in the biliary tract. While the bile pressure, as secreted in the liver, is not more than 150 mm. of water and often less, the gallbladder, as demonstrated by Freese of Johns Hopkins some years ago, possesses an expelling force amounting, if I remember rightly, to more than 200 mm. of water. This factor being removed by cholecystectomy, it is conceivable that with the very small and very elastic *vis a tergo* represented by bile secretion in the liver, the pressure in the common duct may rarely if ever rise to a point at which it may be forced into the pancreas against the slight pressure of the pancreatic secretion, before the sphincter relaxes at the call of food and the bile in the common duct flows harmlessly into the intestine.

If this were shown by experiment to be the case, it would very plausibly explain the good effects of cholecystectomy so regularly seen in the Mayo Clinic.

ABSTRACT OF DISCUSSION

Dr. W. D. Haggard, Nashville, Tenn.: Dr. Archibald's study seems to confirm the general impression I have received in reference to drainage for pancreatitis. We should divide these cases into two groups: first, the cases in which there is infection of the gallbladder, in which it is essential to remove the galbladder; *second*, cases associated with stones in the common duct, in which it is paramount to remove the stones; and when we drain we cure the patient. In the cholecystectomy cases Dr. Archibald goes a step farther and drains through the cystic duct. He cures three out of four patients. Remove the gallbladder whenever wise and safe in cases of chronic pancreatitis and drain.

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[2] Archibald, Edward: A New Factor in the Causation of Pancreatitis, Tr. Internat. Cong. Med., London, 1913; The Experimental Production of Pancreatitis, Paper read June 7, 1918, at Cincinnati Meeting of American Surgical Association.

Dr. E. Starr Judd, Rochester, Minn.: Our experimental work on pancreatitis was brought about entirely by the researches of Dr. Archibald years ago, and it may be at variance with his work at the present time. This work was entirely original so far as Dr. Archibald is concerned. We thought, as our experiments went along, that while they were a little different from Dr. Archibald's, that we were coming to the same conclusions. The assumption was that pancreatitis was due to bile entering the pancreatic duct, because of the action of the sphincter. Archibald proposed to cure pancreatitis by paralyzing Oddi's sphincter. Dr. W. J. Mayo called attention to the fact that clinical evidence shows that removal of the gallbladder is a good procedure, in gallbladder cases, when the pancreas is involved. I remember the first case illustrating this point. The original treatment for chronic pancreatitis was drainage of the gallbladder. It had been drained twice, and all symptoms were relieved, which was the history in most of our cases of pancreatitis that were drained. At the third operation the pancreas was definitely enlarged and there were many adhesions about the gallbladder. It was so badly lacerated that it was impossible to do a cholecystotomy so the gallbladder was removed. The man was watched carefully, with the idea that he might have trouble, that possibly we might have taken away a safety valve. However, he promptly got well and remained well.

Unless there is definite mechanical obstruction in the common duct cholecystenterostomy is useless. Permanent bile drainage cannot be established in that way. The reason we believe that cholecystectomy is a better procedure in pancreatitis is that in every case in which the gallbladder is removed, the common duct dilates until its increased capacity compensates for the loss of the gallbladder, or the sphincter becomes incontinent. This dilatation has been mentioned by many observers when there is obstruction of the duct. In the experimental work of removing the gallbladder, conducted by Dr. Mann, we found what we thought was a definite enlargement in the common duct, and as nearly as it could be estimated in a large percentage of the dogs and cats, a definite dilatation existed in this duct. We tried to estimate how this took place, and it seemed to be due to fluctuation in pressure. The resistance offered by the liver itself was greater than that offered by the walls of the extra hepatic ducts or the sphincter. We presume that this fluctuation in pressure eventually brought about what Dr. Archibald was doing in experimental work on the sphincter. It seemed that the dilatation in the duct continued until there was enough hypertrophy in the wall to overcome the resistance offered by the little sphincter in the ampulla. When that took place we had paralysis of the Oddi sphincter and a continuance of the entrance of bile into the duodenum. In this way we had an explanation of how removal of the gallbladder might possibly cure cases of pancreatitis.

Dr. J. Earl Else, Portland, Ore.: As has been stated, regurgitation of bile is a cause of pancreatitis. In a case seen at postmortem, Nature took care of a regurgitation of bile into the pancreas without leaving any evidence of inflammation although there was undoubtedly some present at one time. The outlet of the ampulla of Vater was almost completely occluded so that pressure on the gallbladder would force only a drop of bile at a time from it. The bile flowed freely from a persistent duct of Santorini. Dissection showed about 6 cm. of the lower portion of the duct of Wirsung to be dilated. From the upper end of the dilated portion a large anastomotic branch led over to the duct of Santorini so that the bile passed up the duct of Wirsung through the large anastomotic branch to the duct of Santorini and down through it to the duodenum. A search of the literature at hand failed to reveal a similar case.

Dr. R. C. Dugan, Ottawa, Kan.: Dr. William J. Mayo was the first surgeon I saw remove the mucous membrane of the gallbladder instead of removing the whole gallbladder. It was done as the operation of necessity because he could not remove the whole gallbladder. Recently, I have been doing that operation by election and I think I get better results in many cases than from a complete cholecystectomy. The pouch of peritoneum left after the removal of the mucous membrane of gallbladder gives opportunity to drain as long as we want to, and when drainage is removed, the gallbladder is practically removed as far as function is concerned.

Dr. Edward W. Archibald, Montreal, Canada: In cases of pancreatitis where there is infection and the gallbladder is removed and the common duct drained, it will be better to drain the common duct a long while rather than a short while. I have a profound admiration for the work that is going on in the Mayo Clinic; work which is not merely clinical, but is reaching out into the domain of experimental surgery. We must all regard such work as being nowadays a necessary complement to clinical work in any clinic of high standing. By it alone, we can get light on many problems. By comparing and discussing our results, as we have done today, we shall ultimately have complete knowledge of this subject.

FURTHER EXPERIENCES WITH THE KONDOLÉON OPERATION FOR ELEPHANTIASIS *

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I wish to discuss in this paper the merits of the Kondoléon operation for elephantiasis and to report the results obtained in seven patients operated on by the method.

Kondoléon[1] of Athens, Greece, in 1912, first reported cases of elephantiasis in which operation was performed by his method. The operation seems to have been gradually evolved through others of a similar though distinctly different type, which had been performed by Lanz,[2] Oppel[3] and Rosanow,[4] and its aim is to establish, by a wide excision of the aponeurosis, a communication between the superficial and deep lymphatic channels. The deep aponeurosis seems distinctly to separate the superficial from the deep group of lymphatics. In elephantiasis, the edematous and hypertrophied tissues are found to lie above the aponeurosis, while the subaponeurotic tissues are usually quite normal. When large pieces of this tissue are removed, sufficient communication may be established to allow the deeper group of lymphatics and the muscles to drain the stagnant lymph ordinarily handled by the blocked superficial group, and this very markedly benefits the condition. The technic of Kondoléon's operation is as follows:

Long incisions are made along the outer and inner aspects of the affected limb, and through each of these a large slice of edematous fat is removed. The aponeurosis is then opened and a portion of it, three or four fingers in width, is excised throughout the entire length of the skin incision. The wound is then closed without drainage in such a way that the skin, with a small amount of subcutaneous fat attached to it, comes in contact with the exposed muscles.

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* From the Mayo Clinic.

* Read before the Section on Surgery, General and Abdominal, at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

[1] Kondoléon, E.: Die chirurgische [illegible] Oedeme durch eine neue Methode der [illegible] Wchnschr., 1912, **59**, 2726-2729; Die [illegible] fantiastischen Oedeme, Zentralbl. f. Chir., 1912, **39**, 1022-1025; Die Dauer-resultate der chirurgischen Behandlung der elefantiastischen Lymphödem, München. med. Wchnschr., 1915, **62**, 541-542.

[2] Lanz: Eröffnung neuer Abfuhrwege bei Stauung in Bauch und unteren Extremitaten, Centralbl. f. Chir., 1911, **38**, 152-155.

[3] Oppel, V. A.: Conservative Operative Treatment of Elephantiasis, Khirurg. Arkh. Velyaminova, St. Petersburg, 1911, **27**, 387-394.

[4] Rosanow, W. N.: Lymphangioplastik bei Elefantiasis, Arch. f. klin. Chir., 1912, **99**, 645-655.

The first article in this country calling attention to and commending this operation was published in 1913 by Matas[5] of New Orleans. He discusses in detail the etiologic factors that contribute to the production of true elephantiasis, giving his own opinion and that of others regarding the part which bacteria, usually streptococci, play in the production of this condition, and emphasizing repeatedly the necessity of such bacterial invasion in order that a true elephantiasis may be produced. Lymphatic or venous stasis, from various causes, usually precedes and is the predisposing cause of the bacterial invasion, although, according to Matas, many writers, including Le Dantec,[6] Sabouraud[6] and Unna,[6] believe that true elephantiasis may occur independently of lymphatic or venous obstruction and solely as a result of repeated attacks of streptococcic infection. Matas states that the histopathologic elements that are essential to complete the picture of elephantiasis are (1) a mechanical obstruction or blockade of the veins and lymphatics of the affected region, usually an obliterative thrombophlebitis or lymphangitis or adenitis; (2) hyperplasia of the collagenous connective tissue of the hypoderm; (3) gradual disappearance of the elastic fibers of the skin; (4) the existence of a coagulable dropsy or hard lymphedema, and (5) a chronic reticular lymphangitis caused by secondary and repeated invasion of pathogenic micro-organisms of the streptococcic type. In conclusion he reports two cases in which operation was performed, one by himself and the other by his associate, Gessner, which were the first cases in this country in which the Kondoléon operation was used.

Royster,[7] early in 1914, reported a case in which operation was performed by Kondoléon's method, and Hill,[8] in 1915, reported a case in which the same procedure had been used.

The operation has been performed in the Mayo Clinic in seven instances. I have reported three of these cases in a recent article on the subject. In three of the patients the disease was located in the left arm, and in the other four patients, in one of the lower extremities.

In the first arm case an elephantiasis had developed following an infected vaccination wound, with repeated erysipelatous attacks in the affected arm. The next arm case in which operation was performed was one of a simple lymphedema of the arm following the radical removal elsewhere of the left breast and axillary glands for a supposed malignant tumor of the breast, but which was afterwards proved to be benign. In the third arm case, an elephantoid condition had resulted from an injury to the arm two years previously.

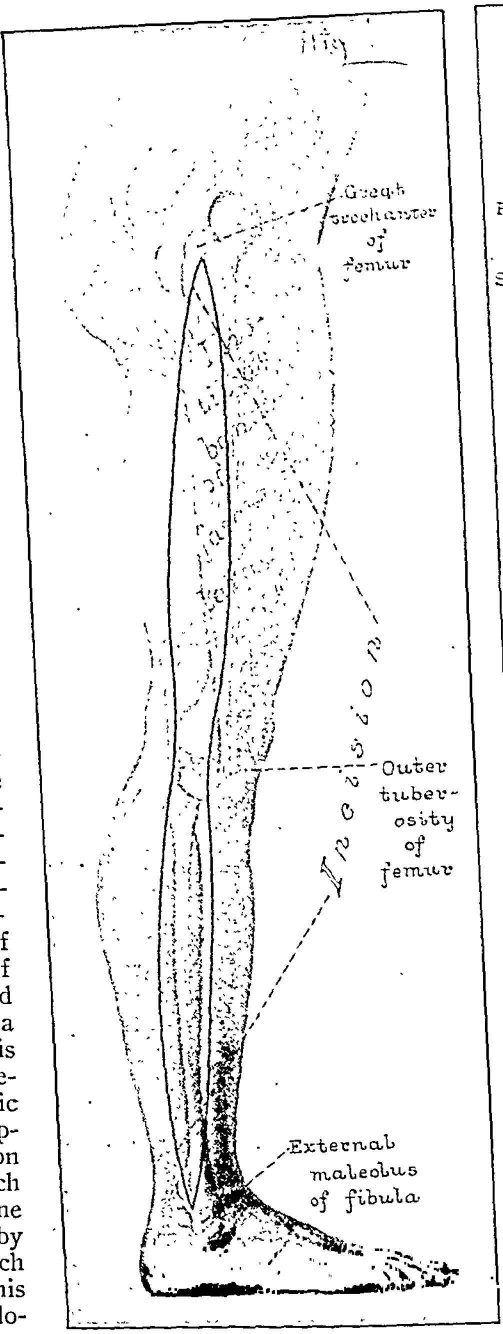
Great trochanter of femur
Outer tuberosity of femur
External maleolus of fibula

Fig. 1.—Line of incision on the outer surface of the leg and thigh.

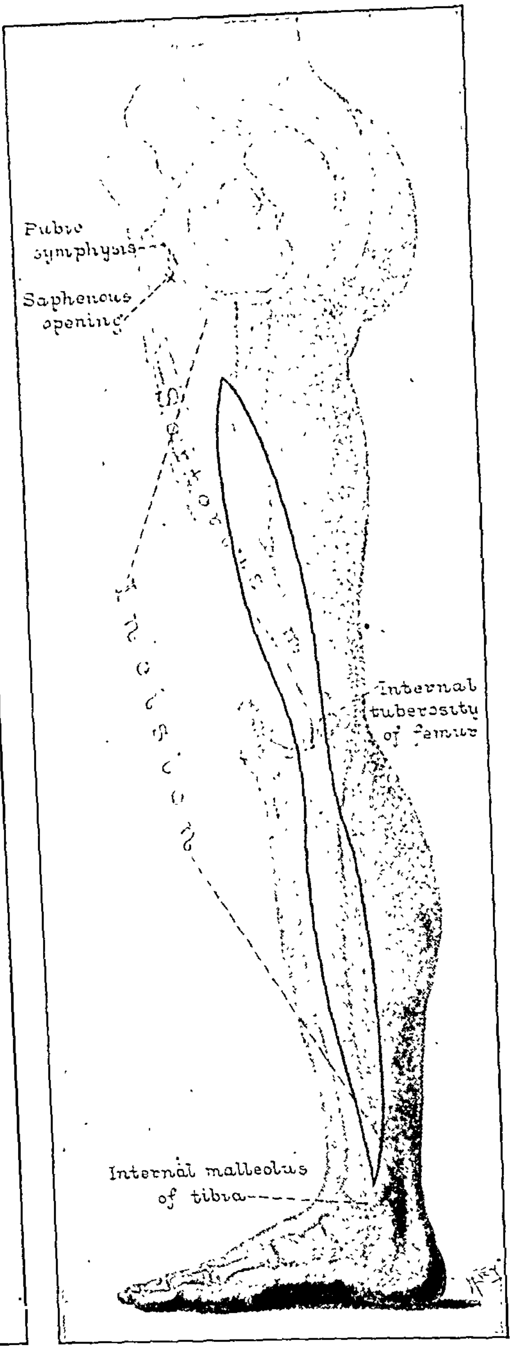

Fig. 2.—Line of incision on the inner surface of the leg and thigh.

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[5] Matas, Rudolph: The Surgical Treatment of Elephantiasis and Elephantoid States Dependent upon Chronic Obstruction of the Lymphatic and Venous Channels, Am. Jour. Trop. Dis. and Prev. Med., 1913, **1**, 60-85.

[6] Quoted by Matas (Note 5).

[7] Royster, H. A.: Elephantiasis and the Kondoléon Operation, The Journal A. M. A., May 30, 1914, p. 1720-1722.

[8] Hill, L. L.: Elephantiasis, Surg., Gynec. and Obst., 1915, **21**, 334-335.

In one of the leg cases, a woman aged 23, the condition was probably congenital, having been first noticed when the patient was a child 1½ years old. In another case of a girl, aged 17 years, who had had trouble for six years, no etiologic factor was obtainable. Her tonsils were septic, and were removed following the operation. The third leg case in which operation was performed was that of a child with a chronic tuberculosis synovitis of the knee and tuberculosis of the inguinal lymph nodes on the affected side. The fourth case was in a woman of 21. The condition had developed six years previously, following an attack of tonsillitis, with subsequent arthritis which was accompanied by fever. At the same time she also had four large boils on her face and right arm.

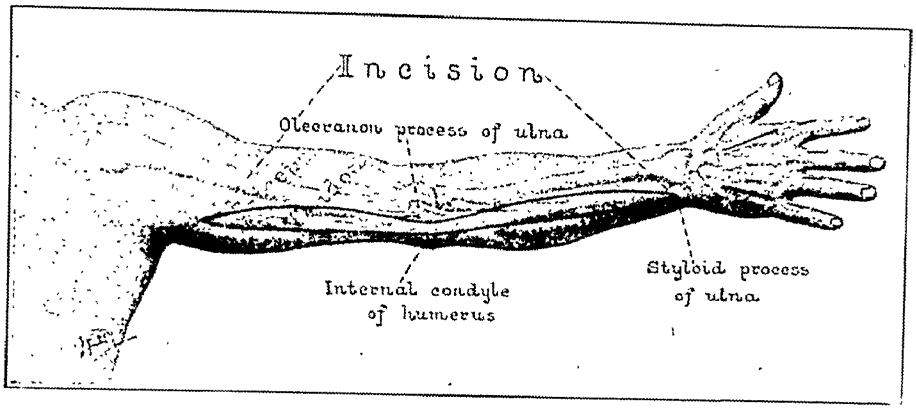

Fig. 3.—Line of incision on the outer surface of the arm and forearm.

In all of the leg cases there was marked thickening of the dermal and hypodermal tissues with marked edema and thickening of the aponeurosis, but in none of these could a history of recurring erysipelatous attacks be obtained.

The results obtained in the arm cases were not so satisfactory as those in the leg cases. In each case improvement was quite marked shortly after the operation, but in two instances the patients still report some swelling which fluctuates in its extent. In the patient in whom the trouble had developed following vaccination, the arm and forearm have returned to normal, but a swelling of a fluctuating type still persists on the dorsal surface of the hand.

In all of the leg cases the improvement was very striking and occurred almost immediately following operation. In the first of these, operation was performed one and one-half years ago (previous to June, 1918), and the others eight months, four months and two months ago, respectively. All were heard from or seen during April or May, 1918, and in each case the improvement has been very marked and has persisted.

We were able to grow streptococci from the verrucose formations which were present in certain areas on the arm of the patient who developed elephantiasis following infection in the vaccination wound. However, although cultures were made from the edematous fat and thickened aponeurosis in nearly all of the other cases in which operation was performed, streptococci or other pathogenic organisms could not be grown. In the first patients operated on, no microscopic examinations were made of the tissues removed. In the later cases, however, careful examinations of these were made with the same findings as those reported by other writers. Dr. Broders, of the laboratory of fresh tissue diagnosis, has very kindly done this portion of the work and reports his findings as follows:

EXAMINATION OF TISSUES

Gross Pathology.—Grossly, the specimens examined presented a reduction in the thickness of the epidermis with a marked thickening of the dermis. A large amount of fat was present underneath the dermis, which was separated into lobules by fibrous connective tissue trabeculae. These trabeculae connected with the aponeurosis, which was also greatly thickened.

Microscopic Appearance of the Tissues.—Microscopically, there was a reduction in the thickness of the epidermis. The epithelial papillae were very much diminished in length and, in a number of areas, they had completely disappeared. The dermis showed a marked thickening and fibrosis. The sweat glands were partially compressed by the excess of fibrous tissue, while the veins and lymphatics were dilated. The elastic tissue of the skin had entirely disappeared. The fibrous trabeculae which separate the fat lobules and connect with the aponeurosis showed numerous dilated veins, capillaries and lymphatics, and also small groups of leukocytes. The aponeurosis presented a picture similar to that of the trabeculae. There were evidences of edema throughout the tissue.

TECHNIC OF OPERATION

In our first cases we followed as closely as possible the technic, as we understood it, which had been used by Kondoléon. We gradually realized that better results were obtained when a fair amount of hypertrophied skin was removed in addition to an extensive removal of the edematous fat, and that it was necessary, in order to obtain the best results, to remove, as Kondoléon has emphasized, a wide strip of aponeurosis. Since we have practiced the removal of the skin we have changed slightly our method of procedure, although we achieve, in the end, results identical, except for a wider removal of skin and fascia, with those obtained in our first cases. At present, we perform the operation as follows:

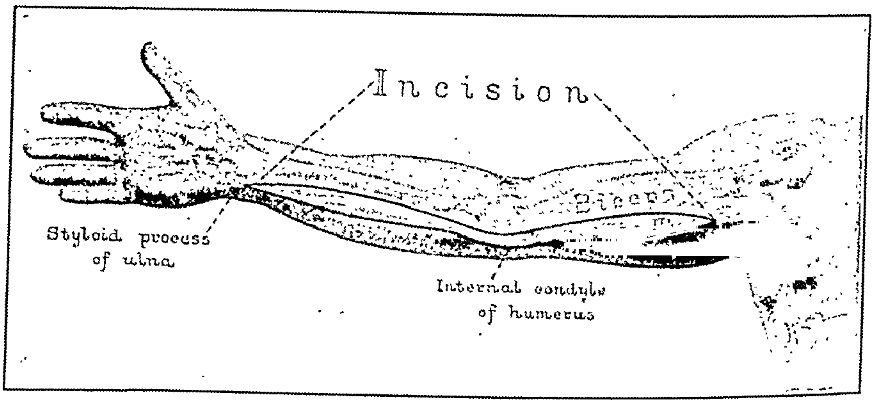

Fig. 4.—Line of incision on the inner surface of the arm and forearm.

A long modified elliptic incision, which includes the skin to be sacrificed, is made on one side of the affected limb. On the outer aspect of one of the lower extremities this incision would extend from the trochanter to the external malleolus. Then, in order to facilitate a wide removal of the subcutaneous fat, the skin is reflected on each side of the incision for a distance of about 1 or 1½ inches. The skin is retracted, and underneath each of the reflected skin edges, a long incision is made through the edematous subcutaneous fat down to and including the aponeurosis. These incisions are made almost parallel to the original skin incision. Included between them is a quadrilateral piece of edematous fat and aponeurosis. At the upper end, these two incisions through the aponeurosis are connected by a transverse incision. The tissues to be removed are now free except for the attachment of the aponeurosis to the underlying muscles. By traction on the tissues that are to be removed, it is very easy to dissect the aponeurosis from the muscle throughout the length of the entire limb and to remove in one long piece the skin, edematous fat and aponeurosis. A number of vessels which tend to bleed profusely are encountered. These are temporarily controlled with forceps. After the tissue has been removed, these forceps are taken off, and surprisingly few of the vessels will be found to need ligatures. The wound is closed with interrupted silkworm-gut stitches, without drainage. It is necessary to do a similar operation on the opposite side of the limb. If the patient's condition permits, we usually do this as soon as the first operation has been completed; if not, after a period of eight or ten days has passed. The tissues, although diseased, heal remarkably well, and in none of the cases in which we have operated has there been the slightest infection (Figs. 1-7).

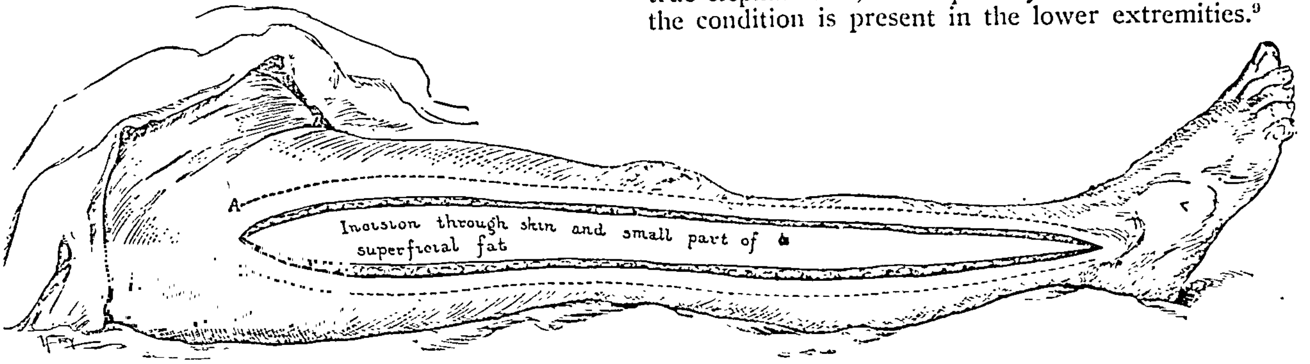

Fig. 5.—Incision used on the outer surface of the thigh and leg. Dotted lines *A* and *B* show extent to which the skin is reflected for the removal of subcutaneous fat.

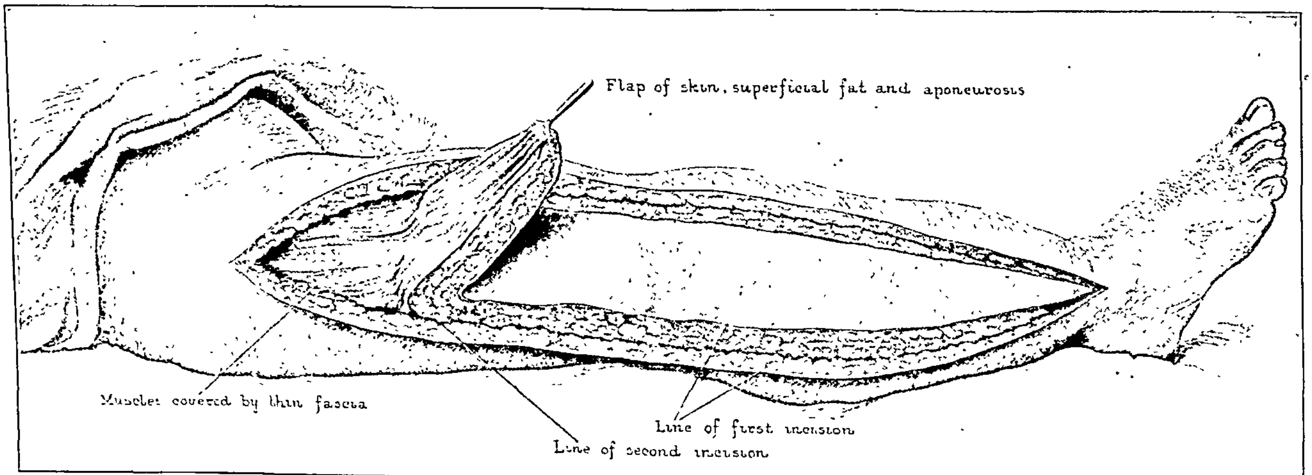
Flap of skin, superficial fat and aponeurosis
Muscles covered by thin fascia
Line of first incision
Line of second incision

Fig. 6.—Skin, a large amount of subcutaneous fat, and aponeurosis removed in one piece.

After operation, the patient is kept in bed for eight or ten days. An elastic bandage is then applied and the patient allowed to get up and walk about. We have advised the use of this elastic bandage for several months, and if there is a tendency toward swelling when it is removed, it should be worn for an indefinite period. The suggestion of Matas, to administer antistreptococcic serum or vaccine at intervals for some time after the operation, has been followed.

Our experience with the Kondoléon operation leads us to believe that in this we have a procedure whereby much aid can be offered to patients suffering with a true elephantiasis, and especially so to those in whom the condition is present in the lower extremities.[9]

REPORT OF CASES

Case 1 (41167).—A woman, aged 21, with the congenital type of elephantiasis of the left leg, which had been present since she was 1½ years of age, was first seen in the Mayo clinic at the age of 15. At that time there was a tremendous enlargement of the left foot, leg and thigh, and a marked thickening of the skin covering these. In August, 1911, according to Handly's method, one silk strand was placed on the outer and one on the inner aspect of the leg, from the ankle to the region of the left groin. The patient returned six months later without improvement; in fact, the enlargement had increased. In February, 1912, a double silk strand was placed subcutaneously on the outer and inner aspects of the leg, and the inner of these strands was extended upward into the fat of the abdominal wall, while the outer strands were carried as high as the left axillary line. The condition remained unchanged until her return more than four years later. At this time, December, 1916, an operation of the Kondoléon type was done, first on the outer side of the leg, and about one month later, on the inner side. The improvement was marked from the beginning, and at the time of her discharge, in March, 1917, the leg was much smaller than before the operation. A letter received in May, 1918, stated that the leg at present was smaller than when she left here, and that she was able to walk and even to run with but slight inconvenience.

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[9] Elliott, J. A.: Elephantiasis Nostras: Report of a Case, Jour. Cutan. Dis., 1917, 35, 17-25.

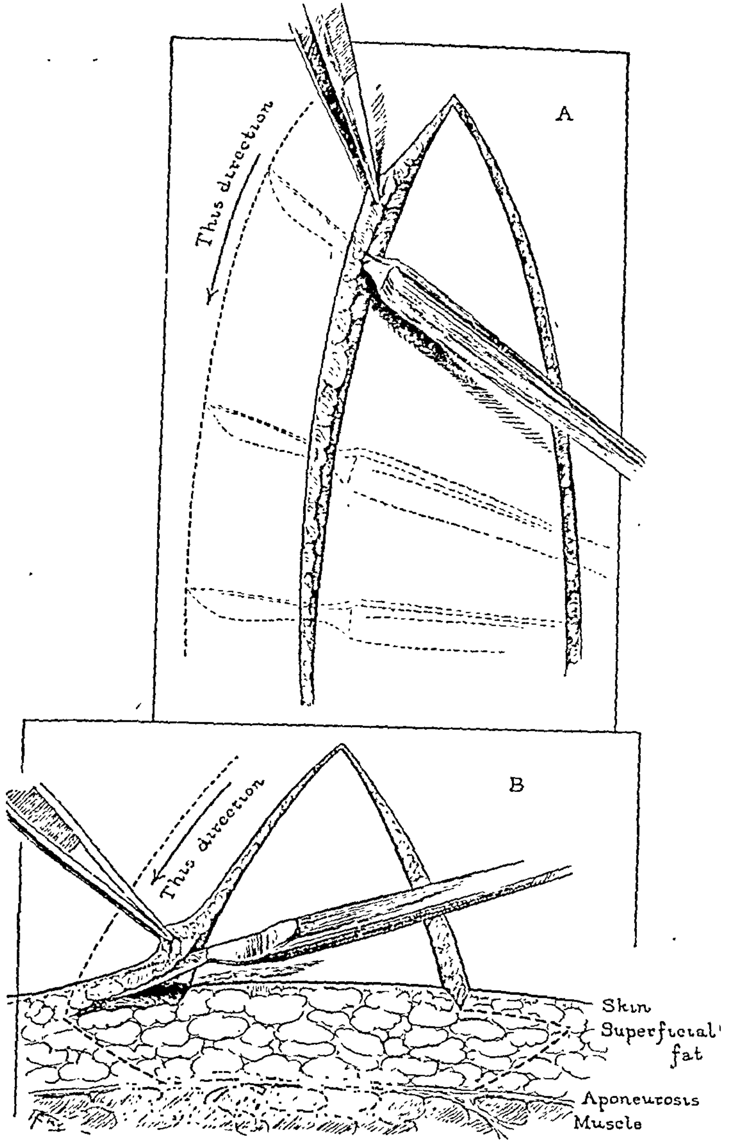


Fig. 7.—*A*, method used to facilitate the removal of a large amount of subcutaneous fat. After the incision has been made the skin and a small amount of fat are reflected in order that a larger amount of fat may be removed. *B*, cross-section of *A*.

CASE 2 (170799)—A woman, aged 20, with elephantiasis nostras, presented a history that was negative until she was 11 years of age, when there was a severe infection following vaccination on the left arm. After the vaccination wound healed she was in good condition until two years before coming to the clinic. At this time, swelling of the left hand had developed and had slowly progressed until the forearm and arm were involved in the process. She had had many attacks of erythema in the swollen portion. The history and findings in this case have been reported in detail by Elliott. At the time of our examination, July 9, 1917, the patient presented a diffuse swelling of the arm, forearm and hand. The swelling was much more marked in the hand and gradually diminished up to a point a few inches below the acromion process. It also involved the proximal phalanges of the fingers. There was a definite thickening of the skin. July 13, an operation of the Kondoléon type was performed through incisions 5 or 6 inches long on the anterior and posterior surfaces of the arm and forearm. No incisions were made on the hand. Considerable improvement followed in the arm and forearm, but the condition in the hand remained stationary and some swelling also remained about the elbow. A second operation was done, September 29, at which time two incisions were made on the dorsal surface of the hand and one on each of the lateral surfaces of the elbow. Multiple incisions were also made on each proximal phalanx of the fingers. The arm and forearm have returned practically to normal. Following the second operation there was considerable improvement for a while in the hand; later, however, the dorsal surface of the hand had a return of the swelling and at the present time (June, 1918) it is swollen.

CASE 3 (206558)—A woman, aged 51, had lymphedema of the left arm following amputation of the breast with removal of the axillary glands, done elsewhere. The wound had not been infected. Two months after the operation the arm began to swell, growing slowly but progressively worse and involving the dorsal surface of the hand, the forearm and the arm nearly as high as the shoulder joint. There was no thickening of the skin. Sept. 1, 1917, a Kondoléon type of operation was done. Long incisions were made on the outer and inner aspects of the arm and forearm from a point a few inches below the shoulder joint down to the wrist; also two incisions were made on the posterior surface of the hand. The swelling in the hand decreased at once, and there was marked improvement in the arm and forearm for a time. A recent letter (May, 1918), would lead us to infer that there is slightly more swelling at this time than there was when she was discharged from our care. This, however, is of a fluctuating character, and is less at times.

CASE 4 (216446)—A woman, aged 43, with an elephantoid condition of the left forearm, had a fall down stair-steps two years before being seen in the clinic, with injury to the left forearm. Three days later the skin on the outer surface of the forearm became red and then black, and remained so for two or three weeks. Three months later the forearm swelled and remained so until she was examined here in January, 1918. At times there was also swelling on the dorsal surface of the hand. When seen, the patient was found to have a swelling of the left forearm, with considerable thickening of the skin. January 12, an operation of the Kondoléon type, similar to the one described in the previous cases, except for the fact that no incisions were made on the dorsal surface of the hand, was done. There was marked immediate improve-

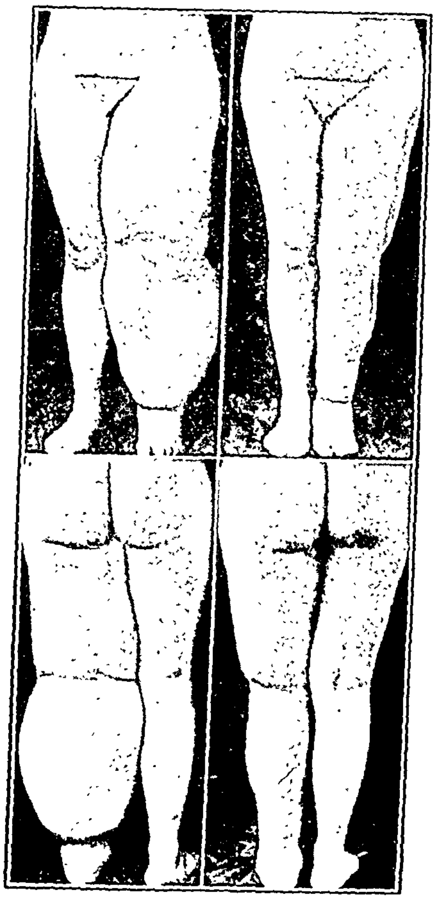


Fig. 8 (Case 1).—Anterior and posterior views before and after operation.

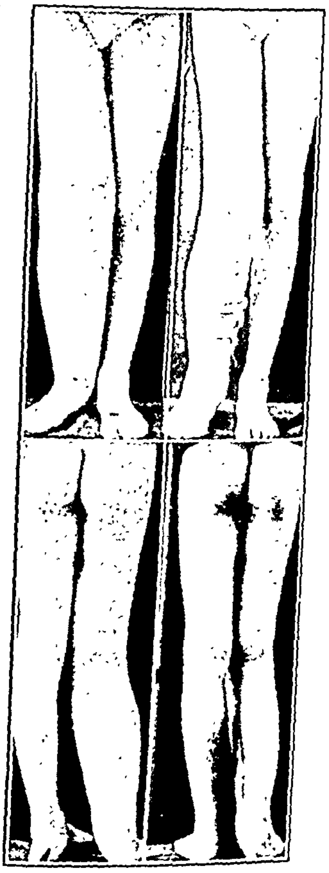


Fig. 9 (Case 6).—Anterior and posterior views before and after operation.

ment which persisted until April 1. The patient, in a recent letter, states that at this time the forearm from the elbow to the wrist became inflamed and full of red blotches. Following this the swelling returned and at the present time (June, 1918), the arm has been swollen for two months. She states that the swelling is nearly as marked now as before the operation.

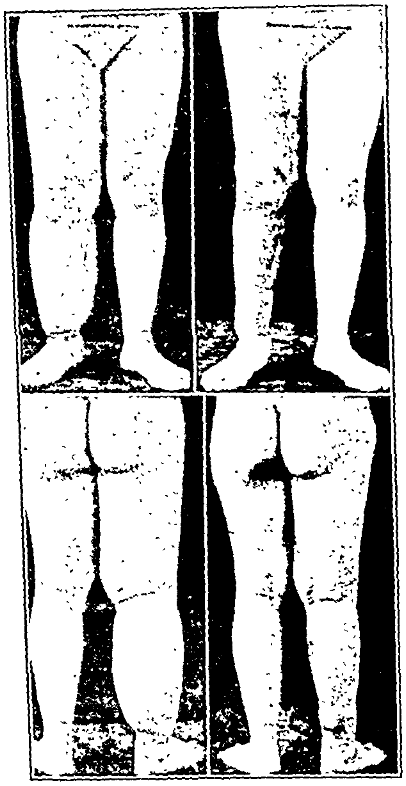


Fig. 10 (Case 5).—Anterior and posterior views before and after operation.

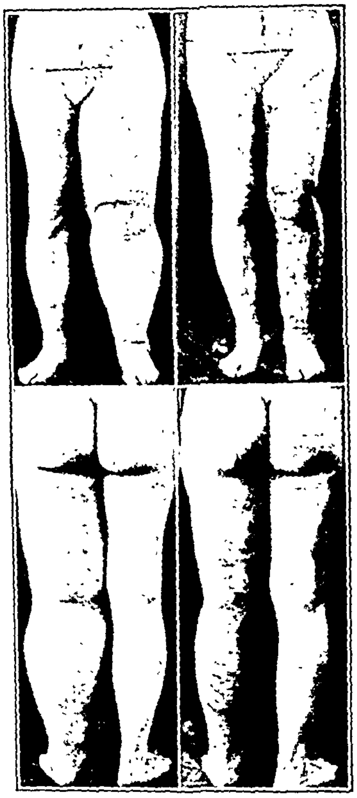


Fig. 11 (Case 7).—Anterior and posterior views before and after operation.

Case 5 (213799)—A girl, aged 17, had a negative history until 1912. At that time the right leg became swollen without apparent cause and remained so until she was seen here in November, 1917. No etiologic factor could be obtained. The patient had septic tonsils, which were removed after her operation. When examined, there was a very marked enlargement of the right leg and thigh, with thickening of the skin. An operation of the Kondoléon type was done, Nov. 27, 1917. It was followed by marked improvement which has been permanent to the present time (June, 1918).

Case 6 (221137).—A girl, aged 12, when 3½ years of age developed swelling on the inside of the right knee, which was followed by a swelling of the leg and thigh. The condition began one month after an attack of measles. She consulted us in February, 1918, at which time there was fairly marked swelling of the leg and thigh, with considerable thickening of the skin. She also had a tuberculous synovitis of the right knee joint, with slight effusion into the joint, and a tuberculosis of the right inguinal glands. A Kondoléon operation was done, Feb. 12, 1918. This was followed by a very fair decrease in the size of the limb, which has remained stationary to the present time (June, 1918). The result following the operation in this patient was not quite so good as that obtained in the other patients in whom the condition was present in the leg.

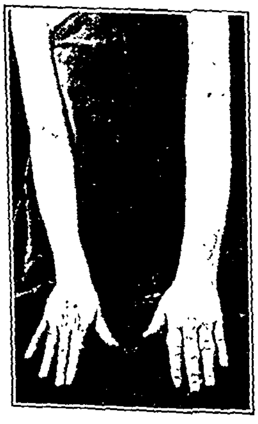


Fig. 12 (Case 2).—Three months after Kondoléon operation. Unfortunately, no photograph was taken in this case before the operation.

Case 7 (228071)—A woman, aged 21, five and one-half years before she was seen in the Mayo clinic, in 1918, developed tonsillitis which was followed by an arthritis with fever. At the same time there were several large boils on her face and right arm. Two and one-half years later the patient developed an amenorrhea, and during six weeks' time lost 30 pounds in weight. She was then told by her physician that she was anemic. The swelling in the right leg continued up to the date of her visit to this clinic, when there was a marked edema of the right leg with considerable thickening of the skin. A Kondoléon operation was done on one side of the limb, April 20, and on the other side, April 30, 1918. It was followed by immediate and very marked improvement which has continued up to the present time (two months). In this instance the limb returned practically to a normal state.

ABSTRACT OF DISCUSSION

Dr. Hubert A. Royster, Raleigh, N. C.: Elephantiasis is not a very common disease, at least not in this country. We have been taught heretofore that the disease was caused by the *Filaria sanguinis-hominis,* or some of the parasites circulating in the blood. I venture to say that unless one has looked up this subject within the last year or so, that opinion would still be held by the majority of physicians. As a matter of fact, as shown by Matas, cases in the southern part of this country rarely exhibit filariae. The case which I had was the only case of true elephantiasis that I have seen and it did not show the *Filaria sanguinis-hominis* in the blood either by day or by night. This patient was operated on in January, 1914, by the method just described, the Kondoléon operation. Fortunately, I had just received and read carefully the exhaustive paper by Dr. Matas and I was able to give this man almost perfect relief; whereas experience by different surgeons with other cases had ended in sad failures. I do not wish to discuss this operation in detail, because Dr. Sistrunk has given practically all that is known about it at the present time. I wish, however, to emphasize the principle that he established, as suggested by Kondoléon, that in this operation is produced an anastomosis or communication between the superficial and deep lymphatics by removing the barrier between them. This principle is a practical one, for in the cases in which it has been done, the result has worked out either for great improvement or almost perfect recovery. My patient was a colored man who had been living in Florida recently. The history extended over seven years, with recurring attacks

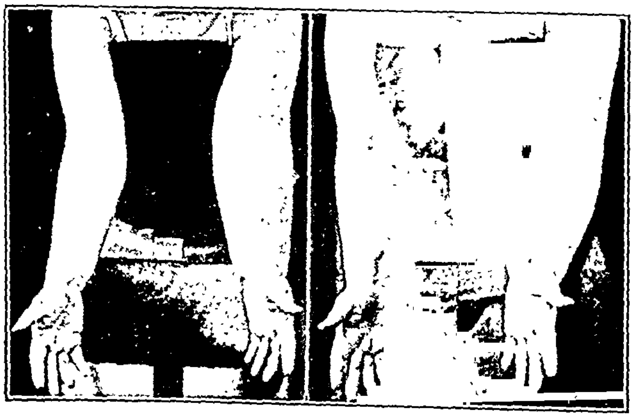


Fig. 13 (Case 3.)—Arm before operation and two and one-half months after operation.

of local inflammation resembling erysipelas. This again goes to show that in most of these cases there is an infection by the streptococcus of one type or another and during the period of the disease are exhibited, from time to time, recurring phases of this infection more or less acute. But very few observers have been able to prove the existence of the streptococcus in the tissues removed. My case was a typical Barbados leg and affected the limb only, from the knee down. There was a peculiar mass very horny, almost calcareous above the great toe. The bleeding at operation is usually quite free, and has to be controlled by hot packing and some ligatures. This case finally resulted in my having to operate on the foot in the same way three months afterward, and now the man's leg is practically well and he can perform his duties as a cook in a lumber camp.

Dr. H. B. Gessner, New Orleans: Dr. Sistrunk is to be congratulated on his excellent results and on his development of the technic. In regard to the etiology, there is no question about the importance of infection in producing these cases. As to the *Filaria sanguinis-hominis,* it must be extremely rare in this country. There is a tradition in New Orleans of a case in the Charity Hospital many years ago in which somebody found the *Filaria sanguinis-hominis;* the story is told how the investigator used to get up at midnight to take the blood and find the filariae dancing around. I have never known a case produced by filariae.

In addition to the one referred to by Dr. Sistrunk, I have had two other cases. In one of my cases the leg alone was involved, in another the forearm, in another the leg and thigh throughout their entire extent. In each of these cases there was a history of fascial and subcutaneous infection, not of an erysipelatous character. But I have seen a case in a middle aged woman in whom quite a considerable elephantiasis was traced to repeated attacks of erysipelas. The case in the forearm began in a finger infection. All of my patients were much improved, but none were cured entirely.

Dr. Matas has had half a dozen cases. In one the return to normal was almost complete.

Just a last word about the technic. We have not modified the technic, but our custom is to make a long incision on each side of the limb, through which the deep fascia is taken out quite extensively. I should estimate that in a leg we would probably take out half of the circumference of the deep fascia.

Dr. H. R. Decker, Pittsburgh: Is an effort made to spare the internal saphenous vein by a median incision?

Dr. Walter E. Sistrunk, Rochester, Minn.: In answer to the question regarding the saphenous vein, we sacrifice that in removing the aponeurosis covering the muscles. It is along the line of incision and is deliberately cut with no bad results.

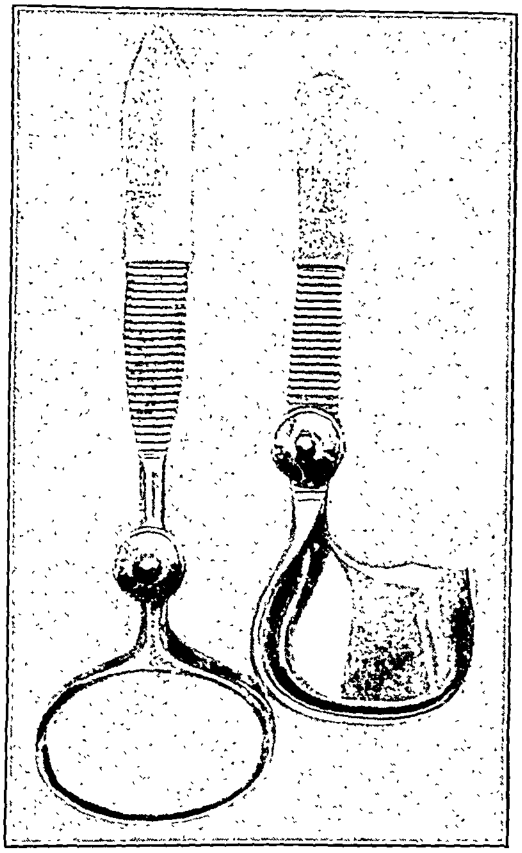
Cause of Leukemia.—The *Nederlandsch Tijdschrift* summarizes an article by Wiczkowski in the *Przeglad Lekarski* relating that he succeeded in inducing a disease in a hen, resembling in some respects human leukemia, by intravenous injection of pleural effusion from a young man who had developed acute leukemia after a trauma. The leukocytes numbered 590,000 and there was pleurisy on one side. In the hen the hemoglobin dropped from 55 to 9 per cent. and the bone marrow showed infiltrates, etc. The clinical picture differed completely from that with so-called fowl leukemia.

TREATMENT OF VERNAL CONJUNCTIVITIS WITH RADIUM

TECHNIC

WILLIAM ALLEN PUSEY, M.D.
CHICAGO

In the course of the last fifteen years, I have treated with roentgen rays or radium several cases of vernal conjunctivitis. The results with either agent seem to be the same, and the application of the radium to the inner surface of the eyelids is so much less difficult than that of roentgen rays that in the last few years I have used only radium. I have had a great many requests for the technic of using radium in these cases. For that reason, I believe it may be interesting to describe the technic that I have found successful in my cases.



Lid forceps.

The lid to be treated is everted and held in the everted position by clamping lightly with lid forceps, such as are illustrated herewith. The blade next to the eye is of solid heavy metal, so that it prevents the eye itself being reached by an appreciable amount of rays. The outer blade consists of a rim with a large opening which leaves exposed the area of conjunctiva for the application of the radium. I have used in these cases a flat radium applicator containing in varnish 5 mg. of radium element. This applicator is of sufficient strength to produce a bright erythema on normal skin by an application of ten minutes through thin rubber cloth.

In order to avoid discomfort, I do not make any pressure in applying the radium to the lid, but pass it back and forth over the lid just short of the point of contact with the surface. I have estimated that in an application applied to the whole papebral conjunctiva with the applicator moving about, each part of the surface of the conjunctiva gets an exposure of one-third the total application; that is, with an application of thirty minutes, the applicator being moved back and forth, each part of the lid gets an exposure of ten minutes. I have preferred to make the application in broken doses. I make an application of five minutes' duration over the whole lid for six successive days, so that in the course of a week the conjunctiva gets thirty minutes of a moving exposure, each part of the lid thus getting ten minutes. This exposure with my applicator has not proved sufficient to give any evidence of roentgen-ray reaction. After such treatment, the patient is usually allowed an interval of several months, depending on the condition of the conjunctivitis. Usually the first series of treatments is followed by distinct improvement. In one successful case, I gave four series of such exposures in the course of a year without at any time producing an apparent radium reaction in the case, but obtaining a completely successful symptomatic result.

The number of cases treated is not sufficient to warrant any dogmatic statements, but all have been cases of severe vernal conjunctivitis, with papillomatous thickening of the conjunctiva, with characteristic grayish pellicle, and with extreme photophobia. They have been of many years' duration, have resisted skilful treatment before, and in the cases in which I have been able to carry the treatment along as far as I have thought necessary, the results have been successful to a noteworthy degree. Some cases have shown symptomatic curves that have now persisted for several years. The results, indeed, have been so gratifying in these otherwise entirely intractable cases, and the treatment is so easy, that the method, I believe, is worthy of wider application than it has received.

7 West Madison Street.

CLINICAL OBSERVATIONS OF CONGENITAL PYLORIC STENOSIS *

REPORT OF OPERATIONS IN 101 CASES

ALFRED A. STRAUSS, M.D.
CHICAGO

In considering congenital pyloric stenosis from the standpoint of clinical observation, I shall endeavor to emphasize some new facts regarding the diagnosis, etiology and operative procedure. Our results and opinions are gained from the observation of 101 cases sent to the clinics of Drs. Abt, Hess, Lackner, Jampolis and Michaels, of which sixty-five were treated surgically and thirty-six medically. In this series, we had three deaths following surgical procedure. In the first thirty-four cases in which operation was performed there was but one death. A child was brought to the hospital in a moribund condition, pulseless, cyanotic, with impetigo infection over its entire body. Dr. Abt advised against operation because the child was in a dying condition. In spite of this fact I operated.

The second fatality was in a case in which distention occurred on the fourth day after operation, the child dying on the sixth day. Necropsy revealed a partial intestinal atresia with obstruction due to this anomaly at the ileocecal valve.

The third death occurred on the eighth day after operation. The child seemed perfectly well, taking nourishment regularly, when it suddenly became cyanotic, and hemorrhages from the lung occurred. Necropsy revealed a pulmonary embolism.

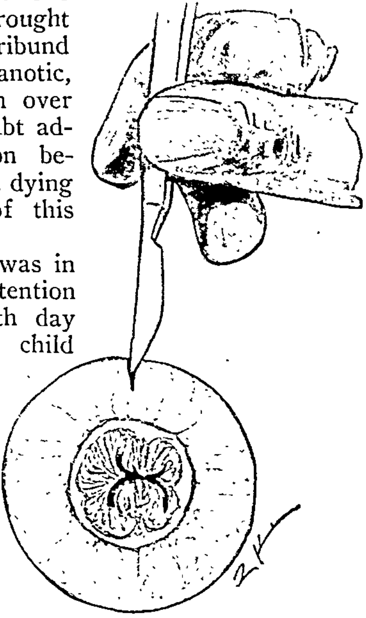


Fig. 1.—Transverse section showing sharp end of scalpel used to divide only superficial layers of muscle tumor.

The sixty-five cases in which operations were performed were not selected cases, operation being refused in no case. Twenty-four of the patients were in a moribund condition, markedly emaciated, with very feeble radial pulse. Five patients weighed less than 5 pounds each, and two weighed less than 4½ pounds. Four were in such a state of decomposition that a semicomatose condition was present.

METHOD OF OPERATION

The method of operation was a pyloroplasty which I devised experimentally in 1913 and 1914.[1] I was stimulated to this experimental work by Dr. Abt, who insisted that gastro-enterostomy, on account of its high mortality, was not the proper operation for this condition. I performed my first operation on a human being in January, 1915, and this series dates from that time until June, 1918.

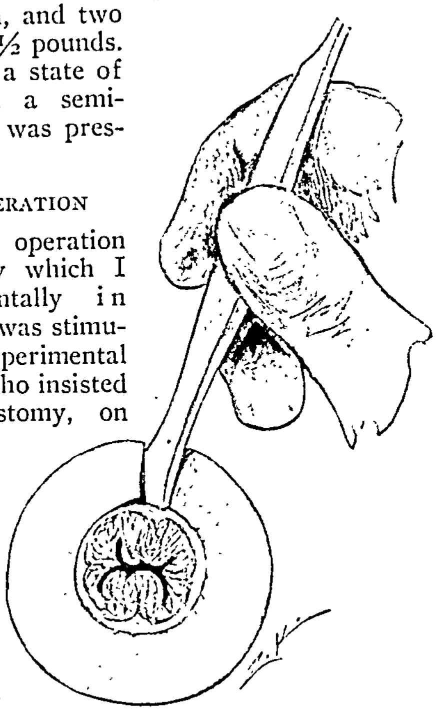


Fig. 2.—Breaking through muscle tumor to mucosa with handle of scalpel.

The pyloroplasty has as its underlying basis the object of reconstructing the pathologic form of pylorus into a normal one. The pyloric tumor shows on cross-section that it has, first, an infolding of its mucosa, and, secondly, a tumor composed of normal hypertrophied smooth muscle. In order to reconstruct this pylorus to the normal we must first unfold the infolding mucosa, which is done by shelling it out, and secondly reduce the muscle tumor, by using it as a plastic flap.

The operation when first devised required about thirty minutes. Since that time I have simplified the technic to such an extent that I do practically all cases within fifteen minutes or less.

The first important fact that I brought out three years ago was that this operation can be performed through an incision from three-fourths inch to 1 inch in length. This will admit the index finger and permit palpation of the pyloric tumor. A small, fine, ribbon-shaped hook is then passed along the index finger to the tumor, which is drawn out by means of the hook. This does away with handling or exposing any portion of the stomach except the pyloric end. On examining the pyloric region one can readily see the intermittent peristaltic contractions of the tumor, independent of any of the contractions of the stomach. As the tumor contracts it becomes white and cartilage-like, and as it relaxes it becomes pink and soft. This, I believe, bears an important relation to the etiology of the condition.

An incision is now made over the more bloodless portion of the tumor, which is usually the upper outer quadrant, starting well up on the normal side of the stomach and carrying it down almost to the duodenal end of the tumor. This incision is made with the

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* From the Michael Reese Hospital.

* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

[1] Strauss, A. A.: New Methods of Pyloroplasty for Congenital Pyloric Stenosis, THE JOURNAL A. M. A., Oct. 30, 1915, p. 1533.

sharp end of the scalpel, going through only the superficial layers (Fig. 1). The rest of the tumor is now split with the handle of the scalpel on the stomach end of the tumor where it converges into the normal stomach musculature (Fig. 2). By breaking through to the mucosa at this point with the handle of the scalpel, the line of cleavage is very easily obtained, and then without any trouble the tumor can be split down to the duodenal end without the slightest danger of puncturing the mucosa. It is absolutely wrong to try to divide the tumor with a sharp scalpel down to the mucosa. This accounts for many deaths due to perforation of the mucosa when the Rammstedt operation is performed. By getting the line of cleavage of the mucosa near the stomach end of the tumor, the mucosa can easily be shelled out from the tumor. This unfolds the infolded mucosa (Fig. 3) and separates Meissner's from Auerbach's plexus, which is the first abnormal condition relieved. The second step is to utilize the hypertrophied muscle tumor. This is accomplished by simply splitting the inner portion and using it as a flap (Fig. 4). These flaps are brought out and sutured over the shelled-out mucosa, and thus the pathologic pylorus is reconstructed into a normal one (Fig. 5).

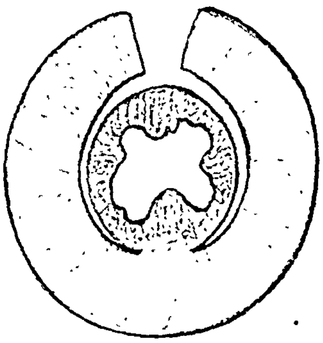
Fig. 3.—Mucosa shelled out from muscle tumor.

The free end of the attached omentum is now sutured with a few interrupted stitches with fine black silk over the operated area so as to cover the raw surfaces. This prevents leakage and hemorrhage, at the same time giving a new blood supply to the split muscle flaps.

ADVANTAGES OF THE OPERATION

This operation has many advantages over the Rammstedt, the principal one being the reduction of the mortality from 30 per cent. in the Rammstedt to less than 4 per cent. Downes, the chief advocate of the Rammstedt operation, has a mortality ranging from 24 to 26 per cent. This high mortality is due to two important factors: either incomplete division of the muscle tumor, of which both Downes and Lewisohn report cases, or puncturing of the mucosa when trying to divide these fibers near or at the duodenal end.

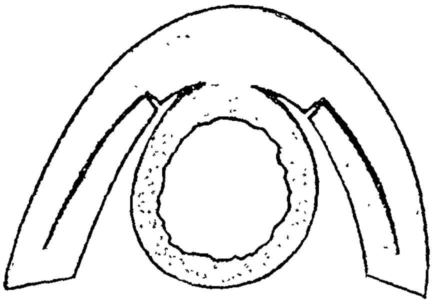
Fig. 4.—Splitting of muscle to produce flaps.

The second great advantage of my operation is that it affords immediate and complete relief. In the Rammstedt the mucosa is not shelled out. As a consequence there is vomiting for a few days which may be sufficient to cause death. By shelling out the mucosa, a free passage for food is immediately established, there is no vomiting and the child rapidly improves. This is undoubtedly an important factor in the lessened mortality rate.

In babies of 3 or 4 weeks the tumor is much smaller than in the older patients. In these patients the Rammstedt operation produces practically complete relief, while in the 7 to 12 weeks old babies the tumor is large and the Rammstedt operation in many instances is not sufficient unless the mucosa is shelled out. We have noted in dissecting out the tumor in these sixty-five cases that the size is in direct proportion to the age of the patient. In other words, we always find a small tumor, or only slight hypertrophy, in a 3 or 4 weeks old baby and always a large tumor in a 7 to 12 weeks old baby. There has been no exception to this rule. I believe, as I shall show later, that this bears an important relationship to the etiology of this condition.

In 30 per cent. of these cases the tumor is more or less one sided. Three fourths of the hypertrophy is on the outer two thirds of the pylorus, while the inner third is small and concave. When operating on these patients a single flap of the tumor suffices.

In the postoperative care, hypodermoclysis has been resorted to on only one occasion. In this case we were unable to feel pulsation at the wrist either before or after operation; the child was not able to swallow and was fed by catheter immediately after operation, from 1 to 1½ ounces of mother's milk being given every three hours. Within twelve hours we obtained a radial pulse, and the child made an uneventful recovery.

In the usual type of case, 1 ounce of physiologic sodium chlorid solution is given by rectum every three hours. As soon as the child is awake it is fed 1 dram of mother's milk every two hours and 1 dram of water in the interval. This is increased so that within twelve hours the patient receives one-half ounce every two hours. Within from thirty-six to forty-eight hours, an ounce is given every two hours; at the end of seventy-two hours, the child is put to the mother's breast.

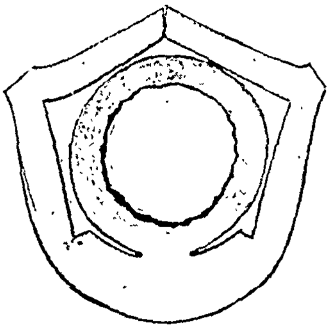
Fig. 5.—Flaps brought into position for suture.

In only six cases out of sixty-five have we seen any vomiting, and in these cases it was only a slight regurgitation. This, I believe, is due to the fact that the mucosa is completely shelled out and the tumor reduced so that there is practically no resistance at the pyloric end. The vomiting which occurs following the Rammstedt operation I am sure is due to the fact that the muscular contractions of the stomach have to enlarge the incomplete opening in the pylorus, which offers more or less resistance.

DIAGNOSIS

Regarding the diagnosis of this condition, I wish to state that the fluoroscopic examination is the most important means of making an accurate diagnosis. It not only shows whether or not the case is one of pyloric stenosis, but classifies the case immediately as to whether the patient should receive medical or surgical treatment. In the 101 cases in which we have employed fluoroscopy, sixty-five were classified as surgical, and in each instance a tumor was found at operation. Of the remaining thirty-six, which we classified as medical, not one has required surgical procedure, showing the absolute exactness of this method.

The reason many men, for example, Grulee, Lewis, Hall and Holt, have stated that the roentgenographic examination is of very little value is that they have depended entirely on the roentgenograms instead of the fluoroscopic examination, and the method of taking the roentgenograms was faulty. Practically all the roentgenograms that have been shown were taken with the baby flat on its back. This allowed the bismuth in the dilated stomach to accumulate on the left side of the vertebrae, and no peristaltic waves were stimulated in the pyloric region.

The technic which I will describe for fluoroscopic examination has been developed by Dr. Ahrens, the roentgenologist at Michael Reese Hospital, who examined all cases with me. The baby does not have to be undressed for this examination. A small amount of bismuth is added to mothers's milk and the child is placed under a horizontal fluoroscope. It is allowed to nurse from the bottle while we watch the passage of the bismuth milk through the esophagus into the stomach. If the child is permitted to lie flat on its back, the bismuth milk gathers on the left side of the vertebrae as a large, round mass and will lie there indefinitely. If the baby is rotated toward the right side, almost on its abdomen, we will see the bismuth gradually gravitate toward the pyloric end of the stomach, and one notices immediate peristaltic waves in the pyloric antrum and pylorus. A small amount of bismuth is now squirted through, and then the pylorus clamps down tightly. Immediately peculiar and characteristic, snakelike, rhythmic, peristaltic contractions can be seen in the pylorus which are independent of the rest of the stomach. This is absolutely pathognomonic of this condition. The flouroscopic examination consumes only about two or three minutes at this time. At the end of two hours the examination is repeated to see if anything has passed through, but as a rule the same picture is observed. At the end of four hours the child is again examined, for the last time. At the two later examinations roentgenograms are taken. In some cases we have observed retroperistalsis in the body of the stomach and a dilated esophagus, which is probably due to the retroperistalsis.

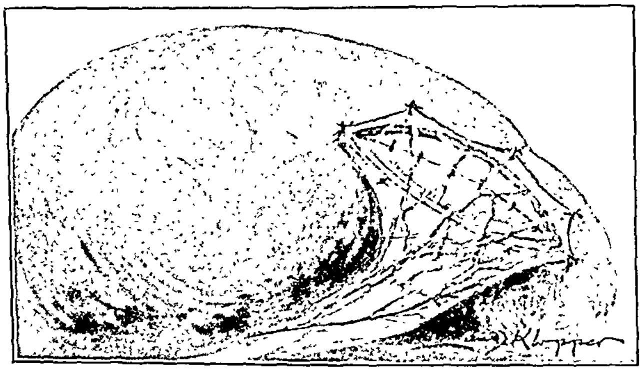
Fig. 6.—Flaps sutured and free ends of attached omentum over area of operation.

The important fact that we have established in these examinations is that the contractions of the pyloric antrum and pylorus are absolutely characteristic. We have standardized the emptying time so that any case in which one half or more of the bismuth milk remains at the end of four hours is recognized as a case of pyloric stenosis, and surgical interference is indicated. The cases in which 70 per cent. or more of the bismuth milk has passed through the pylorus at the end of four hours can, as a rule, be cured medically.

I believe that this simple method of fluoroscopic examination produces no shock, gives an immediate indication as to proper treatment, and is an ideal method of arriving at definite conclusions. It surely is much more accurate than aspiration of the stomach contents from time to time, as suggested by Holt. The stomach tube frequently curls up in the cardiac end of the stomach and nothing is aspirated, even though a large amount of the contents remains in the stomach, and it cannot be denied that the frequent passage of the tube has a markedly bad effect on these moribund infants.

In sixteen of the thirty-six cases treated medically in which we saw peristaltic waves on the abdomen clinically, fluoroscopic examination showed that the emptying time was normal. The peristalsis would start up high on the stomach and force the food through the pylorus in a more or less normal manner. In these cases a similar hyperperistalsis could be noticed in the entire intestinal tract. In other words, we were dealing with cases of hypermotility of the entire gastro-intestinal tract.

In the remaining twenty cases treated medically, three fourths of the bismuth had passed through at the end of four hours, although the characteristic, rhythmic, snakelike contractions of the pylorus were noted. Because of this fact, medical treatment was decided on, and all of these patients were cured without operation.

In three of the cases in which operation was performed there was preoperative vomiting, not of projectile character, and absolutely no peristaltic waves could be seen on the abdomen. Fluoroscopic examination, however, revealed the characteristic, rhythmic, snakelike contractions of the pylorus and almost complete obstruction, and at operation a tumor was found in each case.

The palpation of a tumor is a matter of personal equation. The tumor can be best felt while the child is asleep or nursing. We have paid very little attention to the palpation of the tumor since we have worked out our flouroscopic and roentgenographic technic.

To sum up, the diagnosis is made, first, by the large, characteristic peristaltic waves; second, the fluoroscopic examination; third, the projectile vomiting; fourth, the emaciation; fifth, constipation, and sixth, palpation of the tumor.

ETIOLOGY

A great deal has been written on the etiology of this condition, and many hypotheses have been formulated. Since operating on these sixty-five patients I have come to some fairly definite conclusions, which are based, first, on the negative experimental results in trying to reproduce this condition, and, secondly, on the things observed while operating on these tumors. In 1915 I attempted to reproduce this condition in new-born puppies by shelling out the mucosa and infolding it with fine fascial strips. In this way we produced an obstruction similar to that seen in cross-section of the tumor. A slight hypertrophy of the stomach wall was found due to the hypermotility produced by the obstruction, but no pyloric tumor was formed. In several instances fine platinum electrodes, placed on the pneumogastric nerves, increased the peristaltic action, but no tumor was formed. By isolating the pyloric segment, by cutting away a circular strip of musculature, no independent peristaltic waves were produced and no tumor was formed.

This experimental work demonstrated to my complete satisfaction that it is impossible to form a pyloric tumor unless some experiment can be devised whereby the independent, rhythmic, snakelike contractions of the pylorus can be reproduced.

Dissection of these sixty-five tumors at operation showed that the tumor was absolutely proportionate in size to the age of the infant. This demonstrates that the tumor must be a progressive, developmental affair. Whether this muscular hypertrophy starts before birth, within the uterus, or at birth we can fairly estimate by the fact that Dent reported a pyloric tumor in a 7 months fetus, and several investigators have found them in the new-born. I believe that the condition begins during the fetal development of the stomach and is brought about by the rhythmic contractions of the pylorus which doubtless start at that time, and is due to an abnormal stimulation from the intrinsic or extrinsic nerves of the stomach. This condition of hypertrophy, then, must progress very slowly during the fetal life, but becomes accentuated after birth, owing to the additional irritation produced by the taking of food. The tumor gradually increases in size as a result of the rhythmic contractions of the pylorus, until at the age of from 7 to 12 weeks we have seen tumors four or five times as large as those found at 3 or 4 weeks.

The size of the tumor, however, does not indicate the amount of obstruction present. For instance, a large tumor may be associated with very little pyloric obstruction, and a small hypertrophy may produce almost a complete obstruction.

I base my hypothesis on the fact that the fluoroscopic examination has in many instances revealed these characteristic, rhythmic, snakelike contractions of the pylorus, even though the child had vomited and the stomach was completely empty. It seems reasonable to conclude that the same contractions occur during fetal life, and are accentuated at birth, thus producing the tumor, which increases in size in proportion to the age of the patient.

30 North Michigan Avenue.

HYPERTROPHIC PYLORIC STENOSIS IN INFANCY *

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A lusty boy baby, the first born of a healthy mother with ample milk, who about the third week begins frequent regurgitant vomiting, soon becoming projectile and associated with visible peristalsis, and in whom an olive-shaped tumor may be palpated in the upper right abdomen, is almost certainly the victim of congenital pyloric stenosis.

Undoubtedly there have been many infants, whose deaths were ascribed to marasmus, gastritis, inanition, etc., who really were suffering from unrecognized pyloric stenosis. Up to 1906, the mortality results of surgical intervention in former years, 53.9 per cent., were so forbidding as almost to contraindicate it in the minds of many physicians. The results are greatly improved by substituting simple pyloroplasty, Rammstedt's operation (1912), or the operation of Strauss (1914) for gastro-enterostomy. The operation may be done in less than half the time required for a gastro-enterostomy and with nearly one half the mortality, that is, 18 per cent. This may be further reduced by the employment of local anesthesia, hereafter to be discussed.

The essential pathology is a congenital hypertrophy of the pylorus, especially its transverse muscular fibers, spasm being added as a secondary consideration. "The effort necessary to force food through the narrowed and elongated pyloric lumen produces circulatory disturbances resulting in edema. As the food increases in amount, the muscular effort becomes greater, the lumen narrows down until finally at the tenth day, or a little later, it becomes more or less completely obstructed" (Downes).

At necropsy there is found at the pylorus a napkin-ring-like tumor, often as hard as cartilage, that projects into the duodenum, like a cervix uteri. It is pale in color, three-fourths to 1 inch in length, and in diameter as great as the last joint of an adult's thumb. The swelling has been compared in size and shape to an olive, a peanut or a pecan. On section the orifice is seen to be much diminished in diameter, but what is especially striking is the great thickness of the wall of the pylorus. The lumen may be still further diminished by thick folds of mucous membrane. Probably because of these powerful contraction waves, the prepyloric tissue, as well as the tumor itself, may be edematous. The walls of the stomach become hypertrophied. The stomach may be dilated or rather ballooned. It is sometimes smaller than normal.

Many writers have shown conclusively that the tumor remained after operation. Cases are reported by Morse, Walton, Downes and Holt, and in those of spontaneous cure, as in Howland's case, the hypertrophy remained. Roentgen-ray examinations have shown a closed pylorus three weeks after operation, and Lewis and Grulee picture one 256 days after gastro-enterostomy.

Probably the hypertrophic pyloric stenoses occurring in young adult life may be explained on the basis of a spontaneous cure during infancy with the congenital hypertrophy remaining.

The case of one of Palmer's patients, dying before permission to operate had been obtained, showed that the extirpated stomach had a water-tight pylorus that held without any escape through the dependent pylorus when the stomach was filled with water. In another instance, the pylorus was shown to be closed roentgenologically eight or ten years after a gastro-enterostomy. It is not a spasm but a true hyperplasia.

A case of pyloric stenosis presents a picture so characteristic and clear-cut that diagnosis should not fail.

SYMPTOMS

In the order of their importance the symptoms are as follows: (1) persistent, recurrent, explosive vomiting; (2) starvation stools and diminished urine, with emaciation; (3) visible gastric peristalsis; (4) palpable tumor; (5) bulging epigastrium, with stretched abdomen; (6) progressive loss of weight.

The symptoms may appear within a few days after birth, or be delayed until the second and rarely the third month. They usually appear during the third or fourth week. Vomiting is the first symptom usually noted. A previously healthy, normal, usually robust male, breast-fed baby, begins to vomit abruptly in the

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* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

third or fourth week without apparent cause. To the persistent, explosive, forcible vomiting is added symptoms of faulty nutrition, constipation, oliguria and steady loss of weight. The vomiting is characteristic and different from other vomiting in young infants. The baby is not simply "mewling and puking in the nurse's arms." Food is ejected from the mouth at times to a distance of three or four feet. The vomiting may come on directly after nursing, or it may occur several hours after food is taken. It may be a portion of food taken at a previous meal. Vomiting may occur only once a day and consist of food taken in the previous twenty-four hours. There is no increase in temperature, and at the first the child is hungry, even after vomiting. Then after a time the appetite may fail. The baby is good, surprisingly good, not fretful and usually sleeps quietly. Finally the vomiting becomes persistent, change of food may lessen the vomiting for a day or so and then it returns as severe as ever. There is motor insufficiency and food may be removed from the stomach with a catheter from six to ten hours after feeding. There may be remissions and gain in weight, which only disappear again as soon as vomiting recurs.

Visible gastric peristalsis is a constant symptom. The wave passes from left to right and may be elicited after taking food. The waves may be seen and felt often after flicking or manipulating the abdomen. Mitchell[1] says that the characteristic peristaltic wave looks like two balls rolling one after the other over the epigastrium from left to right. A good plan to elicit peristalsis is to give a meal of some artificial food rather rapidly, through a large-holed nipple and watch the abdomen for fifteen or twenty minutes.

Palpation a little to the right and above the umbilicus often reveals a tumor about the size and shape of a small green olive. Careful, persistent palpation with one finger to the liver side of the middle line, upward, backward and from right to left, against the spine, will very often disclose a firm tumor no bigger than a pimola. Visible peristalsis is seen to be the best evidence, except the tumor when felt.

In severe cases the patients become progressively worse and may lose a pound a week. The child may waste to a skeleton, weighing 3 or 4 pounds. The average weight of these patients coming to operation is 6½ pounds. The average time is six weeks and the average duration of symptoms about four weeks.

The roentgen ray is very valuable in showing the actual pathologic condition of the pylorus and especially whether retention is present. Fluoroscopy shows the rhythmic sinous contraction of the pyloric tumor apart from contraction of the stomach proper. As pointed out by Strauss, if one half or more of the opaque meal is retained as shown by the screen or plate at the end of, say, four hours, operation should be the rule.

TREATMENT

Only the very mild cases without contractions of the tumor and with only partial retention should have medical treatment and dietetic treatment.

If the infant is not losing weight and the vomiting is mostly regurgitant and not projectile, and there is at least one milk stool every forty-eight hours and if the roentgen ray shows an appreciable amount of food passing through the pylorus, tentative medical treatment may be employed. All others should be treated by operation just as any other mechanical obstruction in the alimentary canal. If no real material gain has been brought about in one or two weeks, or if the baby is losing 1 or 2 ounces in weight a day, operative treatment is urgently indicated before the child gets into a wellnigh hopeless condition. Even if the child should eventually recover, it will only be after a very prolonged and perilous course.

It has been shown by Holt and Downes at the Babies' Hospital, New York, that during a period of fifteen years when the operation was performed, only after the patient had resisted medical treatment, the operative mortality was 58 per cent. When the diagnosis was made and operation resorted to, usually soon after admission and diagnosis, the surgical mortality dropped to 43 per cent. Abt thinks that less than one third of the patients recover under medical treatment.

If every patient in cases of hypertrophic pyloric stenosis was operated on as soon as the diagnosis was established, with the present improved technic, the mortality for this condition, when the patient was subjected to operation, might be reduced generally to approach 10 per cent. Failure to seek prompt surgical relief is too often fatal. Even though the baby may be apparently holding its own under medical treatment, it may suddenly, and without apparent cause, become progressively worse and die in a short time.

Local anesthesia is very much more satisfactory in an infant than in an adult. An infant has very little or no physical consciousness of pain and no fear. Local anesthesia really blocks off all traumatic stimuli to the brain, to say nothing of the absence of the shock and dangers of an inhalation anesthesia. General anesthesia is no more satisfactory to the operator and may be extremely harmful to the child. It is certainly not as safe, nor is it necessary to give narcosis for the operation of pyloroplasty. Moreover, the mortality ought to be definitely lowered by the substitution of infiltration for pulmonary anesthetics in babies.

Even today there are many reports of infants brought to operation in a pitifully emaciated condition, due to long continued medical and dietetic treatment. In these cases, the opportunity and safe time for prompt surgical intervention had gone and the forlorn risk was assumed by surgery as a last hope, when really the death was a medical one and due to well-meaning, but misguided efforts to overcome an impermeable obstruction.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. STRAUSS AND HAGGARD

Dr. Frank X. Walls, Chicago: The term "congenital pyloric stenosis" should give way to the term "infantile pyloric stenosis." These cases invariably show an interval after birth in which the children are perfectly normal; in which they take their food and develop normally. There may be, as with every child, a primary loss of weight which is soon made up, and then the babies grow, add to their weight, present no symptoms of vomiting or of retention of food in the stomach, and have normal bowel movements. Then, after an interval of usually ten days to two weeks, the symptoms begin, as described, symptoms indicating stenosis of the pylorus. It must be understood that this is not an atresia; that food does in all of these cases pass through the pylorus into the gastro-intestinal tract in more or less amount. You will recall the case Osler speaks of as the first case published, giving credit to Beardsley. In that case the child lived until it was 5 years of age. These children do not all die in infancy; they suffer a great deal from symptoms due to insufficient food, marasmus, etc., and often pass away from some definite intercurrent condition and are not thought to be cases of stenosis. We do not know anything about the causation of this disease. The tumor mass has been found in children who have been stillborn, and the tumor mass has persisted for a long while in cases in which operation has been performed. I think that the fact that the tumor mass persists for a long time after operation might indicate that the nervous mechanism has little to do with the hypertrophy as we understand it. We have cases of spasm of the pylorus which may persist for a long time, in which the symptoms may be very severe, but in which the spasm of itself does not lead to hypertrophy. These hypertrophic cases, however, are always associated with some spasm; that is, the normal musculature or the hypertrophic musculature is subject to the same stimuli that the normal musculature is, and we have spasm associated with the cases of obstruction.

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[1] Mitchell, E. W.: Ohio State Med. Jour., 1916, **12**, 726.

Dr. Weller Van Hook, Chicago: In reviewing the papers presented we are particularly struck with the fact that we have turned aside from gastro-enterostomy almost entirely, which, of course, is but a temporizing method at best. We should bear in mind the value of directness of attack with reference to lesions everywhere in the body. In this field we hope to be able to do away with gastro-enterostomy, although its successes have been brilliant. The most important point added to the Rammstedt operation by Dr. Strauss is the entire circumferential freeing of the mucosa, which makes it possible for the fluids to pass rapidly. The plastic work on the muscle is, I think, not only unnecessary but mischievous. It is gratifying to see that Dr. Strauss is able to do his work through an incision so small. He is not disturbed after the delivery of the tumefaction by the escape of abdominal contents, so that the operation proceeds more surely and swiftly to its conclusion. We think well, also, of the idea of local anesthesia, but many will be conforted with the idea that children bear general anesthesia extremely well.

Dr. I. A. Abt, Chicago: I has been my privilege to see these cases treated both medically and surgically. I remember the time when the medical treatment was preferred. Under this plan a number of patients recovered. The mortality with medical treatment, however, was extremely high. We found that a large number of these patients treated expectantly lost markedly in weight, developed toxemia and died within a short time. We learned, too, that if these babies lost more than one third of their body weight they were then within the danger point, and if the wasting continued they progressed rapidly toward the fatal end. Therefore, we were very grateful to the surgeons when they contributed gastro-enterostomy to the treatment of these patients, because more children were saved by this operation, if performed properly, than by expectant or medical treatment. But, as time went on, we observed that gastro-enterostomy performed on small babies was a difficult operation and that the mortality figures varied; some surgeons had a very low mortality, though in the aggregate the deaths from this operation were high. The Rammstedt operation and that of Dr. Alfred Strauss should obviously be the operation of choice. They are more rapidly performed, there is less shock and no danger of leakage because the stomach and bowel are not opened. Concerning the diagnosis, I wish to subscribe to what Dr. Strauss and Dr. Haggard have said with reference to the roentgen-ray examination. It has been held that it is unnecessary, that it contributes nothing toward the diagnosis. I believe, however, that if the roentgen-ray examination is made by a competent technician, with the baby in the proper position, we have an invaluable test concerning stenosis of the pylorus. We have made it a rule to submit every case to roentgen-ray examination after giving bismuth in milk. A picture is made shortly after the ingestion of the bismuth and another picture is made in four hours. At about the time of taking the first picture we observe the baby's stomach with the fluoroscope, noting whether the bismuth passes through the pylorus and also the movements of the stomach. I wish to take the liberty to remind surgeons that especial attention should be given to technic in operation on these small patients. Babies, as is well known, stand protracted operations poorly. No time should be lost and the operation should be finished as rapidly as is consistent with careful work. My observation is that surgeons frequently lose valuable time in finding suitable instruments, sutures and needles or clamps while the little patient is being operated on. I think all of these interruptions increase the hazard of operation. I am sure that every abdominal surgeon knows all there is to be known about the closure of the abdominal wound, but I have not infrequently seen the abdominal wound separate completely several days after operation. These babies should be fed shortly after operation. Our babies are fed two or three hours after operation, and we give the first day dram doses of breast milk every two hours—after twenty-four hours we give from one-half to 1 ounce of breast milk every two hours. In three or four days these babies are put to the breast. We emphasize that early breast feeding is of great advantage in the after-treatment. I should like to ask Dr. Haggard what kind of local anesthesia he uses. Many of the stock preparations used for local anesthesia in adults contain too much morphin or cocain for routine use in infancy. I believe with Dr. Van Hook that babies stand general anesthesia very well.

Dr. J. W. Keefe, Providence, R. I.: I have been interested in this subject of pyloric stenosis in infancy for more than twelve years, and I am very glad to find that Drs. Strauss and Haggard are advocating operations at the site of the trouble. Gastrojejunostomy never appealed to me. The only criticism I have of Dr. Strauss' paper is that he does too much. One can make a small incision, with a clamp you can grasp the stomach, pull out the pylorus, grasp it with the thumb and finger of the left hand and with the knife in the right, cut down to the mucosa. An assistant can grasp the edge of the muscle with a mouse toothed forceps, which does not look like muscle, but more like cartilage, and can cut a crescentic piece from one side and then the other side. One can place a little omentum over the flap with one stitch and drop the pylorus back. It is all done in four minutes.

Dr. Alfred A. Strauss, Chicago: I believe that Dr. Haggard's idea concerning the local anesthesia is good, provided it is done perfectly. Local anesthesia not done perfectly will produce shock. It must be done carefully and by an expert. It may be preferable in some cases to a general anesthesia. I have had no postoperative hernias or wound infections in sixty-six cases in which operation was performed. There is a difference between the so-called pylorospasm, which is also a spasm of the entire intestinal tract, and a true case of congenital pyloric stenosis. The former have a normal emptying time, as observed under the fluoroscope, while the latter have a distinct, rhythmic, independent, snakelike spasm of the pyloric segment and a retention which may be complete or partial at the end of four hours. The size of the tumors is in direct proportion to the age of the patient. Dr. Keefe spoke of cutting a piece of the muscle away on each side. It takes but ten minutes to do this operation, and I believe it is best to have a complete reconstruction of the pylorus surrounded with normal muscle, since this hypertrophied muscle has been shown to be histologically normal. This is accomplished by making a muscle flap from the muscle tumor and suturing together with a few interrupted sutures, and the raw surfaces covered with the free edge of the attached omentum. Dr. Keefe's idea of cutting away the muscle will produce a greater hernia of the mucosa than the Rammstedt operation, which I believe is a very undesirable feature.

Dr. William D. Haggard, Nashville, Tenn.: In our local anesthesia we employ procain, 0.1 per cent. Any one not having heretofore tried it will find it surprisingly pleasant, exceedingly satisfactory and efficient.

Malaria in India.—In the Bombay presidency in the three-year period 1914-1916, according to *Public Health Reports*, there were admitted to the hospital 1,352,372 cases of malaria as compared with 1,171,600 in the three-year period from 1911 to 1913. The increase was due mainly to an accession of malaria in the province of Sind on account of excessive rains and an abnormal inundation of the Indus in 1916. It does not, it is said, indicate a relaxation of the efforts of the government to combat malaria in the especially malarious tracts.

Military Medicine and Surgery

EXAMINATION OF MEN ENTERING THE AVIATION SERVICE

A NEW TEST AND METHOD OF CLASSIFICATION FOR LABYRINTH, MUSCLE TONE AND BLOOD PRESSURE FINDINGS: PRELIMINARY REPORT

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To be an aviator a man must be physically qualified, his eyesight must be normal without glasses, and his static ear must respond to the regulation tests for nystagmus, past pointing and falling. This gives us an aviator who is a perfect type of man, but is this enough?

For ordinary maneuvering close to earth the man does not require to be so finely adjusted, for he is in a medium of air almost the same in density and condition as that at the earth's surface. This does not hold true, however, for the aviator who ascends to more than a thousand feet, as when he has attained a greater altitude, he experiences varying conditions of density and temperature, which change in a direct and fixed ratio at the different levels. Were it the practice of the aviator to ascend and descend to any given altitude at a moderate rate of speed, he might not have to be chosen with so much care; but we know that he must change his altitude suddenly, and in many instances to a great amount, so that he is subjected to violent variations of temperature and especially air pressure, sometimes within a few seconds. To consider this phase of aviation is my theme.

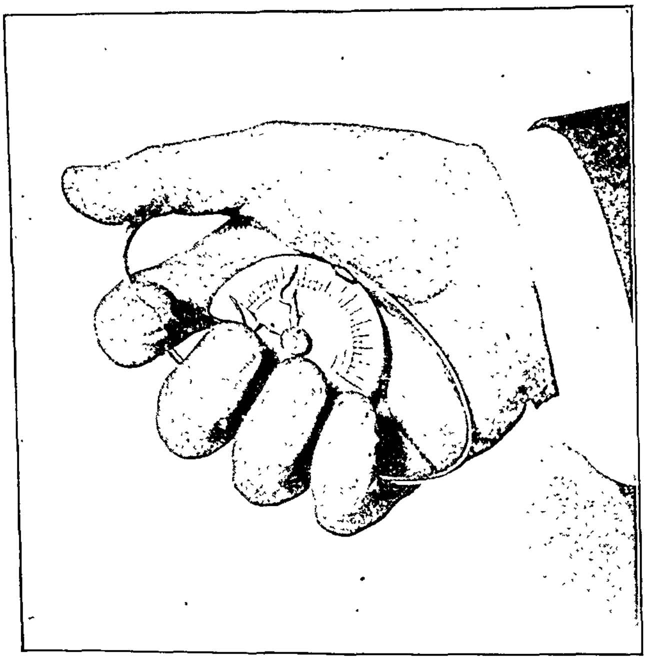

Fig. 1.—Dynamometer test for length of one nerve impulse at 60 kg., measured in seconds.

In order to understand the meaning of atmospheric influence, it is necessary to determine the difference in air pressure at the several altitudes. The pressure of air at sea level is about 14.7 pounds per square inch. At 20,000 feet altitude it has been reduced to less than half the earth's surface pressure, and at 30,000 feet it has fallen to about one third of the pressure at the earth's surface.

Motor manufacturers have had to recognize this fact in the equipment of carbureters furnished aeroplane machines, for it is necessary to have a regulating device to feed three times the amount of oxygen into the gasoline mixture at 15,000 feet that is required at the earth's surface. The temperature at 25,000 feet altitude is far below zero (F.), while the sun's rays register near 140 F. Thus the aviator may have his feet frozen, and his face, were it exposed, would be blistered from the sun's rays. As we ascend, the content of the air is not changed, but the oxygen tension is diminished, at 16,000 feet it being only 25 per cent. of the tension at the earth's surface.[1] Should we attain a great altitude, therefore, it would become necessary to make use of an oxygen mask to be able to carry on proper aeration of the blood. Aeroplanes are now being supplied with a device by which oxygen is fed to the engine and to the aviator automatically, as the altitude becomes greater, and which diminishes the oxygen supplied as the altitude becomes less.

Most men do not experience much change going from a denser into a rarer medium, which occurs in ascent, but when traveling rapidly from a rarer into a denser air, some very striking symptoms are produced, which vary in degree from slight vertigo to syncope and at times motor paralysis.

It is necessary to have men selected, so far as possible, who are perfect. The life of the aviator is all important as the information which he supplies determines the maneuvers on the earth's surface or on the sea. His photographs are absolutely essential. When the war began a machine capable of 60 miles per hour was considered all that could be looked for, and the ascension to 10,000 feet altitude in half an hour was thought wonderful. In order to leave the earth's surface, the air craft was required to gain momentum by running on the ground for several hundred feet before it was able to take to the air. At the present time, the machine must be able to leave the ground almost immediately and be able to climb at the rate of 1,000 feet a minute. The speed of the present machines in the German army, we are told, is not less than 140 miles an hour, while their scouting craft do as much as 200 miles an hour.

It has occurred to me that the examinations that are being made are not of sufficient scope, as they show nothing of the condition of the applicant in actual flying, and it is with this idea in view that I have directed my attention in the following work, which is, so far as I know, entirely new.

To have a sound body and a normal vestibular apparatus is well enough, but clinically, we know that some people who have all this are subject at times to dizzy spells, seasickness and fainting, when subjected to motion or air pressure changes, such as one would encounter in the act of flying. Therefore, some sort of test should be made to simulate actual conditions met in flying, and the results determined.

Aviators do not merely fly in their machines; they are required to do evolutions in order to escape from their adversaries or gain advantage of them in the game of war. No matter how expert a man may be with a machine gun, he would be powerless in combat unless he were able to outmaneuver his adversary in reconnoitering, so he can bring himself into a vantage position to get "on the tail" of his opponent and thus be able to put his machine gun into effective operation. In order to gain this advantage, it is necessary for the aviator to do trick flying, which means that he must be able to ascend and descend very rapidly and do irregular motions, thus making his adversary believe he is disabled or killed. He does this by falling as though hit or out of control. He must be able to drop, irrespective of plane position, for several thousand feet, if necessary, and be able at a given monment, to "flatten out" so that he can loop over or under his opponent and bring up on his adversary's "tail," under and behind him.

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[1] Report of Medical Research Board, Mil. Surgeon, February, 1918, p. 146.

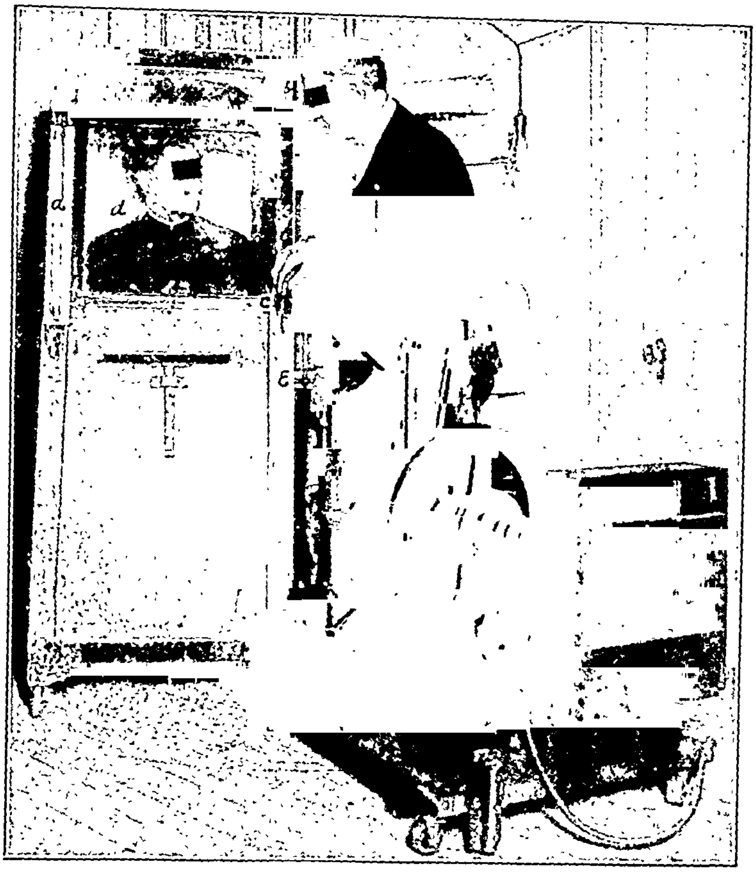

Fig. 2.—Front view of cabinet and exhaust pump: *a*, altigraph; *b*, vacuum gage; *c*, petcock for letting air into cabinet; *d*, glass window; *e*, tube connecting cabinet with pump.

TABLE 1.—DETERMINATION OF HEIGHTS BY THE BAROMETER*

Values of 60368 (1 + 0.0010195 × 36) log. $\frac{29.90}{B}$

Barometric Pressure		Altitude, Feet	Barometric Pressure		Altitude, Feet
Inches	Mm.		Inches	Mm.	
11.00	286	25,900	21.50	559	8,964
12.00	312	24,814	22.00	572	8,339
12.50	325	23,704	22.50	585	7,728
13.00	338	22,638	23.00	598	7,131
13.50	351	21,612	23.50	611	6,546
14.00	364	20,624	24.00	624	5,974
14.50	377	19,674	24.50	637	5,414
15.00	390	18,749	25.00	650	4,865
15.50	403	17,858	25.50	663	4,326
16.00	416	16,995	26.00	676	3,799
16.50	429	16,158	26.50	689	3,281
17.00	442	15,347	27.00	702	2,773
17.50	455	14.559	27.50	715	2,274
18.00	468	13,793	28.00	730	1,784
18.50	481	13,049	28.50	743	1,303
19.00	494	12,324	29.00	756	831
19.50	507	11,618	29.50	769	366
20.00	520	10,930	30.00	782	—91
20.50	533	10,259	30.50	795	—540
21.00	546	9,604			

* Smithsonian Meteorological Tables, third revised edition, 1907, pp. 100-103.

In subjecting himself to these motions and traveling through the air at such terrific speed, forward, upward or downward, he experiences violent variations of atmospheric pressure conditions, and it is obvious that he should be tested as to his ability to resist these sudden changes in air pressure. To judge the ability of an applicant for this service, we should test him in some way which simulates, as nearly as possible, an actual flight with such maneuvers.

In order to obtain this information without actual flying, I have devised a cabinet which meets all the requirements in all particulars. The object of attempting this series of experiments was suggested to me by the reports that were constantly printed in the press stating that a certain number of planes were shot down in combat, while others went down out of control. It appeared to me that there must be a reason why so many fell out of control, not from any damage done by the opponent, but rather from some cause in the man himself who fell to his death. I have learned since beginning my experiments that in 50 per cent. of falls, nothing faulty with the engine has been discovered, the plane has had no marks of being hit, nor has the aviator received a wound from his adversary. Therefore, it appears that half of the fatalities in aviation are due to a cause other than those we term "effects of combat."

Causes that may produce the fall of an aeroplane may be divided into two classes: (1) from fault of the machine, and (2) from fault of the operator.

1. From fault of the machine, a fall may thus occur:

(*a*) The plane may have remained in the air too long by an extensive flight and have exhausted the supply of gasoline (this is not often productive of a fall, as the pilot can volplane to earth and land safely).

(*b*) The motor may have become fouled by faulty or worn machinery or connecting parts.

(*c*) The motor may have been hit and thus put out of commission.

(*d*) The steering gear or planes may have been shot away.

(*e*) The gasoline tank may have been hit and set afire or exploded.

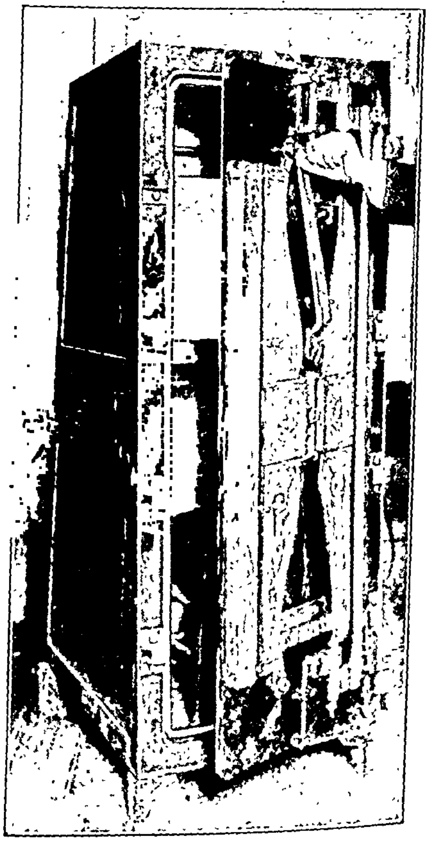

Fig. 3.—Rear view of cabinet, showing door with locking air-tight device.

2. From fault of the operator, a fall may thus occur:

(*a*) The operator may have been killed or injured, making it impossible to work the steering gear of his machine.

(*b*) The operator may have become entirely exhausted.

(*c*) The operator may have become dizzy from change of air pressure, and the vertigo may have been so severe that he has lost control of his plane.

(*d*) The operator may have lost his motor power from great atmospheric pressure changes.

(*e*) The operator may have become unconscious from hemorrhage into the labyrinth, or from heart failure.

The object of these experiments is to ascertain if any of the causes mentioned as being the fault of the operator can be detected, and to find a remedy, so far as the army aviator is concerned, if possible.

TABLE 2.—ASCENT TO 6,000 FEET ALTITUDE IN SIX MINUTES; DESCENT IN THIRTY SECONDS

Name	Age	Pulse		Blood Pressure				Dynamometer				Rotation												Class	Remarks
		Before	After	Before		After		Before		After		Before						After							
				Systolic	Diastolic	Systolic	Diastolic	R	L	R	L	Nyst.		10 to R.		10 to L.		Nyst.		10 to R.		10 to L.			
												R	L	R	L	R	L	R	L	R	L	R	L		
W.	19	...	...	138	76	145	85	2	2	3	1.5	23	18	20	22	14	16	20	20	21	31	15	19		
M.	26	...	...	140	66	145	65	4	3	3	2	10	10	5	5	5	5	11	12	21	17	11	17		
P.	19	...	...	140	80	150	70	3	3	2	2	24	24	10	5	10	5	22	31	27	9	21	24		
K.	24	...	...	140	70	150	74	6	5	4	3	17	17	5	10	5	5	12	11	20	9	21	23		
H.	25	...	...	120	80	130	70	6	7	6	4	25	25	20	35	27	35	27	28	15	20	15	18	....	Rejected for perforated membrana tympani after mastoid operation
H.	25	...	...	146	82	120	82	3	5	4	5	16	15	47	40	13	17	15	18	12	14	12	17	....	P. P. to R., R. H. to R.; L. H. to L.; P. P. to L., normal
G.	28	...	...	140	80	165	80	2	4	2	2	26	30	..	..	..	..	30	30	19	11	28	40		
S.	24	...	...	134	84	150	78	4	3	3	4	25	24	15	15	20	20	24	20	8	9	12	14		
W.	21	...	66	146	92	160	80	4	3	4	4	26	26	10	10	15	10	22	18	12	16	14	16		
O.	22	...	...	138	60	158	75	4	3	3	2	22	20	5	5	5	5	18	17	25	25	13	17		
B.	19	...	...	138	80	140	80	2	2	2	1	27	25	..	..	..	..	20	22	8	10	18	8		
B.	28	...	...	120	74	120	64	3	3	3	3	20	20	10	5	10	5	15	17	12	19	20	6		
V.	24	...	...	135	60	130	60	3	3	2	3	18	20	38	38	..	..	25	20	18	8				
L.	22	...	...	140	60	130	60	4	4	3	3.5	18	20	5	5	10	15	21	18	12	12	30	30	....	P. P. to R. divergent
E.	25	...	...	138	60	138	68	3.5	3	3.5	4	20	17	5	7	5	5	20	20	11	11	11	11		
A.	23	...	...	122	70	110	65	2	2	1	1	22	18	10	10	10	10	15	12	8	15	10	15		
M.	25	...	...	120	82	115	70	...	...	...	...	20	20	5	5	10	5	14	13	16	16	17	8		
D.	30	...	...	120	80	100	65	...	...	...	...	14	14	8	9	9	10	17	13	4	4	11	15		
I.	19	...	...	120	65	135	75	2	2	1.5	1.5	23	18	8	8	4	4	15	13	5	5	8	10		
J.	35	...	...	120	75	124	88	3	3	2	2	25	25	35	22	18	25	15	20	12	7	16	22	....	Bal. serv.
H.	23	...	...	138	88	142	104	3	3	3	2	17	18	5	5	5	5	2?	10	3	3	14	15		
D.	25	...	...	122.	80	136	88	4	5	3	3	20	25	12	12	8	12	12	13	3	5	8	12	....	Left handed
M.	22	...	...	140	70	150	80	2.5	2.5	2.5	2	32	25	10	12	12	17	20	21	12	12	5	5	....	R. H.; shoots with L. H.
H.	21	...	...	120	65	125	80	2	2	4	3	20	20	3	3	3	3	18	19	3	3	2	2	....	L. H; writes with R. H.
S.	29	...	...	124	74	120	67	3	2	1	2	20	18	2	2	3	2	20	14	23	25	18	18	....	L. H.
B.	22	...	...	120	70	125	80	3.5	5	4.5	2	25	20	1	1	2	2	21	14	21	22	17	18		
B.	22	86	74	126	88	130	80	5	3	5	2	24	24	35	20	10	10	20	12	8	22	12	12		
R.	23	...	...	130	78	125	70	3.5	3.5	3	3.5	22	25	15	15	15	20	23	18	13*	4*	13	3	....	* 10 to R., divergent
K.	22	...	...	120	80	105	55	6	4	2.5	2.5	20	18	10	10	5	10	10	10	10	15*	5	5	....	* P. P. to L.
F.	19	72	68	122	72	110	65	5	5	5.5	5	30	22	15	15	5	5	17	13	to L 15	15	15	to R 15	....	Div. P. P.
R.	21	...	82	138	80	112	65	...	...	...	...	22	25	16	17	12	12	12	14	5	5	14	15		
S.	20	...	76	130	88	118	75	...	...	...	...	22	21	8	8	10	12	18	14	10	10	25	30	....	Strongly R. H.
T.	20	...	72	112	78	120	60	7	8	4.5	3	26	23	15	17	5	6	15	20	15	10	15	20	....	L. H.
D.	27	72	64	124	78	122	80	9	10	2	3	20	18	5	15	5	5	13	7	12	16	. 4	5		
L.	28	72	68	130	70	123	80	9	9	5	4	20	20	6	8	8	15	14	15	13	13	5	5		
D.	22	...	84	145	84	128	72	7	3	7	4	20	18	8	12	9	11	12	12	10	12	18	30		
H.	35	72	68	144	83	150	70	...	...	...	...	22	25	15	18	12	12	21	22	7	7	7	12	A	L. H.
L.	27	80	88	128	78	135	63	2	2.5	2.5	2.5	20	23	5	17	5	5	12	12	12	8	5	6	A	
K.	27	104	108	138	86	138	70	2	2	1	1	20	23	22	24	20	30	20	20	24	18	10	28	B	L. H.
W.	22	76	62	144	82	145	98	3.5	1	1	1	25	20	12	10	28	17	13	13	8	8	16	28	A	L. H.; writes with R. H.
J.	27	82	80	118	70	135	95	2	2.5	2	2	20	23	6	12	8	14	15	15	5	15	6	13		
L.	24	74	72	145	88	147	85	4	3	2	1	20	20	10	14	8	10	10	11	20	13	20	17		
W.	20	68	100	147	88	145	85	2	5	4	6	20	20	20	8	5	13	8	11	5	8	11	15		
O.	30	...	102	138	82	120	78	8	5	3	2	18	20	8	12	5	15	12	16	15	7	5	8	A	
K.	..	...	108	118	80	122	76	2	4	6	8	22	22	12	13	8	·10	10	12	14	15	10	10	B	
S.	25	80	88	120	85	122	80	3	2.5	1.5	1.5	15	20	5	15	4	15	13	18	10	14	13	18	A	
W.	23	89	92	124	65	110	75	2	2	1	1.5	27	26	15	17	12	12	15	15	10	15	12	15	.A	
W.	27	80	70	124	76	118	60	3.5	3	3	3	33	34	5	15	3	17	24	20	18	22	25	20	A	
W.	29	56	60	118	80	110	70	2.5	2	2	1.5	30	25	20	30	14	18	17	20	15	20	5	8	B	

In subjecting a man to this test, it is necessary to examine him both before and after he has been subjected to the test, so that a comparison of the findings may be had. He therefore is subjected to the regular physical tests for blood pressure, pulse, muscular tone and rotation. In testing the heart, I have taken both the systolic and diastolic pressures, and the rapidity of the pulse.

The muscle tonus is taken by the dynamometer for 60 kg. pressure and is represented in the number of seconds the pressure can be sustained by a single nerve impulse, for both the right and the left hands (Fig. 1). The turning test for nystagmus is done the same as in the present Army test for the horizontal canal, and is given in the number of seconds the nystagmus persists. The past pointing is also given in seconds for each hand instead of the number of times he points incorrectly, which gives us a better value to the amount of past pointing.

After this examination the applicant is placed in the cabinet and the air exhausted at the rate of 1,000 feet altitude per minute, until he has reached a height of 6,000 feet. He is kept in this rarefaction (which represents altitude) for a certain length of time, as shown in the tables. A fall is simulated by allowing air to enter the cabinet, and the time it takes to bring the pressure to that of the earth's surface represents a rapid or slow descent. In this manner, we can simulate an actual flight, and when the aviator has finally returned to the pressure of the earth's surface, he is again submitted to the tests for heart, motor power and rotation motions.

Tables 2 and 3 show the results of the different tests.

THE APPARATUS

The apparatus consists of a steel cabinet to which a vacuum pump is attached (Fig. 2). The cabinet is supplied with a mercurial altigraph (Fig. 2 *a*), the scale of which is marked to represent the vacuum in feet of altitude for each one-half inch. This altigraph will register from the earth's surface to an altitude of 25,000 feet. The cabinet is made of plate steel, being 5 feet high, 2½ feet wide, and an average of 3 feet in depth, being more than 3 feet at the bottom and less at the top. There is a window in the front of the cabinet 14 inches square, of half-inch French plate glass, through which the one being tested can be observed (Fig. 2 *d*). The door in the rear, 2 by 4 feet, is locked by a lever which works sliding beveled dogs, making the door close air tight (Fig. 3). The cabinet is provided with four petcocks (Fig. 2, *a*, *b*, *c*, *e*), one for connection with the altigraph, one for a negative pressure gage, one to allow air to enter the cabinet, and the other connecting the vacuum pump. The pump is a Geryk of the high vacuum, double cylinder, cantilever type, which is operated by a one-quarter horse power variable speed motor, with rheostat control, so that the pump can be operated fast or slow.

TABLE 3.—ASCENT TO 6,000 FEET ALTITUDE IN SIX MINUTES; CONTINUATION AT 6,000 FEET FOR FIFTEEN MINUTES; DESCENT IN THIRTY SECONDS

Name	Age	Pulse		Blood Pressure				Dynamometer				Rotation												Class	Remarks
				Before		After		Before		After		Before						After							
		Before	After	Systolic	Diastolic	Systolic	Diastolic	R	L	R	L	Nyst.		10 to R.		10 to L.		Nyst.		10 to R.		10 to L.			
												R	L	R	L	R	L	R	L	R	L	R	L		
C.	21	80	72	110	70	135	84	1	1.5	1	1	12	14	10	20	12	14	12	10	7	12	8	12	B	
M.	22	72	72	125	78	145	80	5.3	6	6	6.5	22	25	10	15	12	16	17	21	15	20	22	45	A	
C.	25	96	80	128	75	125	84	3.5	5	4	4	16	20	12	15	5	7	15	17	5	11	10	13	A	Rej. by board
W.	..	96	92	134	78	150	75	2.3	4	1	2	20	25	26	30	17	21	25	21	20	17	7	18	A	
B.	22	92	76	120	81	122	85	1.5	2	1	1.5	20	22	11	11	14	16	20	16	16	16	10	13	A	
B.	22	72	58	122	64	100	58	1.5	2	3	2.5	23	23	15	16	15	15	20	16	35	37	8,23	25	B	P. P. 8 by holding arm on arm of chair as guide
S.	26	78	72	140	68	140	60	1	1	1	2	32	33	10	12	15	16	27	24	20	32	25	22	A	
H.	24	90	84	124	70	120	65	1	1	2.5	2	23	26	16	20	12	20	27	26	10	18	15	6	A	
U.	19	84	80	135	75	135	80	1.5	1	1	1	22	22	20	10	20	25	16	20	22	27	18	21	A	
M.	26	68	60	118	70	128	80	4	2.5	3.2	3	20	22	12*	20	12	16	20	22	12	15	4	13	A	* Divergent
G.	25	72	66	134	74	132	80	6.5	3.5	2.3	3.5	23	25	24	22	18	20	17	13	18	10	18	33	B	
V.	26	60	60	132	80	135	75	8	5	5	6.2	17	16	15	20	15	18	15	17	22	25	15	30	A	
G.	21	80	72	120	70	118	70	1.5	1	3	2	24	22	15	15	20	33	22	25	30	25	25	28	A	L. H.
A.	27	72	72	140	90	128	80	2	2	2	2	20	18	20	15	10	17	20	18	25	33	15	18	A	
P.	30	96	80	138	75	134	70	1	1	2	3.5	30	28	10	10	10	12	23	25	4	12	12	15	A	
S.	21	82	88	127	70	120	80	1	1	2	1.5	20	22	16	18	12	15	18	18	15	18	17	20	A	
S.	25	84	70	130	80	125	82	2	2	2	1	21	16	30	22	22	21	15	11	25	20	15	18	B	
R.	24	64	72	120	78	118	76	1	1.75	1.5	1.5	20	20	35	22	20	18	25	18	5	15	20	15	A	
V.	26	76	82	128	86	122	72	2	1.5	1.5	1.5	18	20	15	18	13	15	15	17	12	15	5	6	A	
W.	25	80	80	125	80	120	80	1	1	1.5	1.2	20	24	20	15	17	17	20	21	18	15	18	22	A	
P.	22	80	72	130	65	128	65	1.2	1	1	1.5	22	24	18	15	15	18	25	20	20	25	15	12	A	
B.	21	76	72	115	60	100	60	1	3	2	1.5	20	25	10	15	4	7	17	20	13	17	4	8	A	
C.	26	74	64	138	88	115	68	1.5	2	1	1	15	18	5	15	10	20	10	15	15	20	15	12	A	R. H. for writing; throws ball with L. H.
E.	20	76	68	148	88	130	80	2	1	1	1.5	15	15	30	30	20	30	8	12	25	25	12	14	A	
A.	23	84	76	140	70	115	70	2	1.5	3	2	27	24	8	8	35	20	18	18	10	10	30	18	A	
B.	28	92	76	138	80	120	80	1	4	4	6	20	20	4	5	5	7	13	17	11	11	4	5	B	Never was seasick or dizzy; has no effect at all
T.	25	72	72	140	80	120	84	4	3	3	7	15	16	5	5	7	7	12	12	3	3	3	3	B	L. H.; writes with R. H.
G.	24	96	86	138	88	120	80	2.5	3	2	1.5	22	26	5	13	10	13	16	19	35	45	6	8	B	P. P. to R. divergent
A.	22	96	90	130	86	115	70	6	6	2	2	20	20	5	15	10	18	9	7	5	5	5	5	A	
K.	20	90	92	124	76	122	76	2	1.5	2	2	22	24	7	12	20	35	20	15	8	10	15	8	C	Thin, hollow chest
G.	28	72	60	128	84	125	75	1.5	1.5	2.2	2.7	25	25	*14*	*18*	*9*	*10*	*19*	*16*	*6*	*12*	*9*	*17*	....	*L. H. for most things*
D.	22	76	72	135	76	120	70	4	2.5	6	5	18	18	55	62	11	37	13	9	6	15	11	15		
J.	25	76	66	140	80	120	70	2	1.5	1.5	2	30	25	15	20	15	18	15	17	12	26	16	18		
S.	25	74	72	124	82	130	70	2	1.5	2	1	30	30	14	15	10	26	17	19	15	19	10	18		
R.	24	88	88	122	76	130	100	1	1	2	2	19	24	15	15	15	15	17	15	15	7	10	10		
M.	23	92	56	138	68	90	70	1	5	2	5	18	23	10	15	15	15	15	17	4	15	10	14	....	Fainted after vaccum test for 20 min. after out 10 min.; Scotch; red hair; 6 feet; strong
S.	21	84	88	146	86	120	76	3	5	2	2	24	28	15	18	19	20	20	23	10	25	20	15		
P.	22	78	70	130	74	104	76	4	3	3	2	26	26	17	20	17	12	16	14	8	8	12	12		
N.	25	66	64	136	70	120	78	2	2	2	2	17	22	17	15	12	17	8	13	3	6	5	12		
L.	24	92	92	148	98	150	108	1	1	1.2	2.2	31	25	8	10	4	10	26	17	12	15	6	10	A	
M.	28	88	82	120	80	117	70	1.5	1	1	1	15	15	8	5	5	5	12	12	7	5	5	5	A	
B.	22	86	84	140	90	135	84	2	2	1.5	2	20	18	10	13	4	12	17	19	13	17	10	10	A	
W.	25	96	84	130	70	118	62	2	1	1	1	22	20	5	7	5	20	18	17	5	7	5	15	B	
S.	22	92	84	118	64	130	80	1	1	1	1.5	20	22	5	12	27	17	17	16	5	14	22	10	B	

In trying men who had flown, it was determined that the sensations they experienced were exactly similar to those they had during an actual flight. One intelligent flyer, of months' experience as an operator of a plane in actual warfare, told me the pain in his ears and head was the same as he had had in work in his machine, and so far as he could judge, the same experience as he had in actual flight. The type of the men examined should be noted as they are the same men who have been picked by the Aviation Corps for our flying squadrons. The fact of their being rare specimens both in mind and body would lead us to believe that they would show as little change in the tests as any body of men on earth, as they are all healthy men from the best American stock, none of them over 30 years of age, while the great majority are from 20 to 24. Thus the material I have used is the hardest I could possibly find in which to show defects.

From a study of the tables it will be observed that those whose blood pressure was elevated showed a stimulation of the motor tone, and also a less depressed condition of the labyrinth. In those whose blood pressure was reduced, the muscle tone was less (most cases to the extent of 50 per cent. or more), and the labyrinth less active.

The matter for us to decide is whether we can tell which men will be most useful as aviators, and to classify the good from the poor. I would say that a man whose labyrinth is stimulated by a trial flight would be more acute than one in whom the labyrinth became less active. A man whose muscle tone is more, or at least as great after a trial, would be better than a man whose muscle tone is impaired. A man whose blood pressure is elevated would be better than if the blood pressure were lowered. On the one hand, we have a man who is being made more active, while on the other, we have a man who has a degree of shock, varying in degree with the amount of change exhibited. In the cases in which there is not much change in the findings, we would say they would be serviceable in balloon service, as they remain in the same medium of air for lengths of time. When the blood pressure and muscle tone are increased, and the labyrinth is more sensitive, I would consider the man a good risk. It is true that if this man flies long enough, he may have compensatory hypertrophy and arteriosclerosis, but not for a considerable time. The man with lowered blood pressure, lessened muscle tone and less stimulated labyrinth is a bad risk, and should never be allowed above the earth's surface. In this manner I have figured that in Table 2, 26 per cent. were unfit as aviators, and that in Table 3, 33 per cent. fell below the standard test. These men, in my opinion, will probably deteriorate rapidly and fall to their death if allowed to fly.

Tests for oxygen want do not enter into the conditions exhibited in my series of observations, from the fact that oxygen want manifests itself after time in the air and it is destined to be used as a test for the life of endurance of an aviator and not as a test to determine whether or not the man is fit to become a flier.

The thought presents itself that the men who show the greatest effects of oxygen want are probably those whose defects would be shown in this test before they become actual aviators; and, therefore, I would expect the percentage of those affected by oxygen want to be materially reduced, were men selected for air service by this test before being accepted as pilots.

I do not wish to appear too positive in my assertions, as the work is novel, and I have not had opportunity to follow these men who have been subjected to my test, to find whether or not they remain competent to fly. I therefore submit it for its true worth, reserving the right to change my opinion on any point mentioned in the scope of this paper, although it has been carefully considered, and I feel my contentions well grounded. The results of observations surely indicate that the general circulatory system has a very marked and decided effect on physiologic problems, and should teach us to consider more than vestibular findings, such as we have been accustomed to do in the diagnosis of diseased or perverted symptoms. The tests for vestibular irritation should be taken in a more scientific manner, as some of them at present leave too much to be desired in the matter of duration and accuracy.

Nystagmus is marked in seconds and there is no reason why past pointing and falling should not be determined in the same way. In this way we shall arrive at a more uniform method, and our findings will be of more importance in diagnosis.

30 North Michigan Avenue.

TABLE 4.—SUMMARY

	Blood Pressure										Dynamometer			Nystagmus									
	Increase				Decrease				Same					10 Turns to Right					10 Turns to Left				
	+10 Points		−10 Points		+10 Points		−10 Points							Increase		Decrease		Same	Increase		Decrease		Same
	Systolic	Diastolic	Systolic	Diastolic	Systolic	Diastolic	Systolic	Diastolic	Systolic	Diastolic	Inc.	Dec.	Same	+10 Sec.	−10 Sec.	+10 Sec.	−10 Sec.		+10 Sec.	−10 Sec.	+10 Sec.	−10 Sec.	
Table 2:	22%	24%	30%	8%	20%	32%	18%	24%	10%	12%	19%	80%	1%		14%	32%	48%	6%		10%	20%	70%	
Table 3:	13%	15%	13%	25%	43%	15%	25%	30%	6%	15%	32%	50%	18%		2%	12%	84%	12%		4%	12%	81%	10%

	Past Pointing																				Left Handed			
	10 Turns to Right										10 Turns to Left													
	Right Hand					Left Hand					Right Hand					Left Hand					14% Increase		R	L
	Increase		Decrease		Same	Increase		Decrease		Same	Increase		Decrease		Same	Increase		Decrease		Same				
	+10 Sec.	−10 Sec.	+10 Sec.	−10 Sec.		+10 Sec.	−10 Sec.	+10 Sec.	−10 Sec.		+10 Sec.	−10 Sec.	+10 Sec.	−10 Sec.		+10 Sec.	−10 Sec.	+10 Sec.	−10 Sec.		R	L	Inc.	Dec.
Table 2:	19%	32%	10%	35%	4%	8%	34%	15%	33%	10%	26%	26%	10%	26%	12%	30%	30%	12%	16%	12%	20%	5%		
Table 3:	10%	37%	4%	37%	12%	12%	37%	10%	37%	4%	2%	24%	2%	50%	22%	8%	8%	10%	60%	8%	.....	.....	20%	33%

Milk Substitutes.—In a recent issue of the *British Medical Journal* it is stated that, when there is a shortage of cow's milk, we require for many invalids, and indeed for others, a food which is at once a liquid, very easily digestible, inexpensive, very easily prepared, and without any strong flavor. It need not be a complete food, any more than cow's milk is, for it would not often be the sole food, except temporarily, as in brief febrile states. Such a food can be most simply made from oats as follows:

Boil 3 ounces of fine oatmeal in a double saucepan for at least an hour. Then cool to 140 F., and stir in two or three teaspoonfuls of extract of malt or of finely ground malt. The jellylike mass will quickly change to a syrupy liquid. Let it remain for an hour at the same temperature. It is then ready for use, and should measure 1 pint.

This liquid oatmeal has much the same composition as cow's milk, except that there is a deficiency of fat and some little of protein. It has lost most of the oatmeal flavor and is not so white as cow's milk.

SPECIAL TUBERCULOSIS EXAMINATIONS IN THE MILITARY SERVICE

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NEW HAVEN, CONN.

It was my privilege from the middle of last July to the middle of January of this year, to participate in the examination for tuberculosis of various branches of our army, including 7,589 prospective officers at the two Plattsburg training camps, 6,081 Regulars at Fort Ethan Allen, Plattsburg and Camp Devens, and 4,167 drafted men of the National Army at Camp Devens, Ayer, Mass.

Before taking up in detail our findings at the various camps, it might not be out of place to state a few lessons which practical experience taught us regarding the best method of procedure for the expeditious examination of so large a number of men.

BEST METHOD OF PROCEDURE

1. *The Personnel of the Examining Board.*—If the number of men to be examined is not more than 5,000, three medical officers will be able to examine the lungs of the entire command within one month. If the command is large, such as is found at the National Army cantonments, varying from 25,000 to 40,000, a larger board, of course, is necessary; but it was found most satisfactory to subdivide this larger board into smaller ones of three members each. The ranking officer takes complete charge of the workings of his board, including the paper work, which plays such an important rôle. Theoretically, this is supposed to be handled by the junior officer; but as the chairman of the board is held responsible for it, it inevitably results that he is the one who actually attends to it. Besides the medical officers, each board of three should have a noncommissioned officer and four enlisted men attached to it, each trained so as to be interchangeable with the other, should the absence of any one of them occur: one man assigned to each medical officer; one, who is able to use the typewriter, to act as clerk, while the noncommissioned officer is put in charge and made responsible for these men.

2. *Working Hours.*—The hours of work should not be too long, as the work is so intensive that it is tiring to both mind and body. A working day of between five and six hours is most satisfactory for the good of all concerned. A rest of ten or fifteen minutes should be taken at the end of each hour of examination.

3. *Number of Men to Be Examined per Day.*—If a detailed heart examination is not to be included, each officer can and should examine at least seventy-five men a day. This number can be raised to 100 should necessity demand, but ought not to exceed this mark, for after examining 100 men in a day, one's interest and powers of observation lag.

4. *Examination by Groups.*—We found it more satisfactory to examine the men in small groups of from five to ten each, rather than to have a long, continuous line. There are three main reasons for this:

(*a*) A line from 50 to 60 yards long is a most disheartening sight for the examiner.

(*b*) There is less noise with the smaller groups.

(*c*) The interval between finishing one group and starting the next is a very acceptable rest to the ears of the examiner.

5. *Posture During the Examination.*—If the examiner is young, active and not too heavy, the examination can be carried on standing, the medical officer moving down the line, instead of moving the line past him, thus eliminating the noise of the shuffle of feet. On the other hand, it may be found advantageous for the examiner to sit on a table, or something about that height, and have the men file past him.

6. *The Value of History Taking.*—We are told in Circular 20 from the Surgeon-General's Office that "conclusions of the examiners shall be based only on physical signs, sputum examinations and radiographs. Statements of the subject as to symptoms will not be accepted as proof of the existence of tuberculosis unless supported by objective evidence." Nevertheless, when we started in this work, we thought it might be helpful in many cases to obtain some sort of history of each man. We, therefore, used small cards for our own records, on which was a place for the man's name, rank, organization, a printed diagram of the chest, and four questions, concerning: (1) family history of tuberculosis; (2) pleurisy; (3) cough lasting for one month or more, and (4) hemoptysis. Every man was asked these four questions, and a positive answer to any of them was cause for a more thorough examination. This scheme, with some modifications, was used by the larger board at Camp Devens. It is quite apparent, on the face of it, that men who wish to get out of the service, as do many of our drafted men, will give more positive answers than men who are working to stay in, such as the men in the reserve officers' training camps, or the volunteer enlisted men. This was well brought out at Camp Devens, when we compared these four questions on the history records of 500 volunteers, among the Engineers, with the same questions among 500 of the drafted men. Table 1 was worked up by Capt. E. P. Eglee of our board.

TABLE 1.—POSITIVE ANSWERS

	Drafted Men		Regulars	
	No.	Per Cent.	No.	Per Cent.
Family history	94	18.8	30	6.0
Pleurisy	80	16.0	22	4.4
Cough	161	32.2	61	12.2
Hemoptysis	114	22.8	22	4.4
	449		135	

Of 2,000 questions, 449, or 22.4 per cent., were answered affirmatively by the drafted men. Of the same 2,000 questions, 135, or only 6.7 per cent., were answered affirmatively by the Regulars. Another thing which pointed to the apparent unreliability of routine histories is the fact that out of 11,631 examinations at the first and second Plattsburg training camps and at Fort Ethan Allen, we found positive signs of tuberculosis, where there was also a positive history in only twenty-one cases, or 0.18 per cent. These figures, as far as they go, seem to indicate that routine history taking in our work has helped very little, if at all.

7. *The Examination.*—The preliminary examinations used by all boards of which I was a member consisted merely of inspection and auscultation after cough, particular attention being paid to breath sounds only in doubtful cases, and when time permitted, as some idea of these may be obtained by listening to the inspiration following the cough. The men were instructed by one of our corps men how to exhale, cough and inhale, but I am free to admit that this procedure was done very poorly in many cases. Nature teaches us that when we want to cough, the

act is most effectively accomplished by taking in a breath before we do so. Now, to instruct an intelligent man to cough, after breathing out, is often difficult; but when one is confronted by an uneducated man or a man who speaks no language which the examiner knows, it is next to impossible, in the time allowed, to make him understand what one wishes him to do. If one can get such a man, and there are many thousands of them in our army, to cough at any time during the respiratory cycle, and then take a deep breath, one should be more than satisfied. I feel certain that auscultation following the cough at the end of expiration is, indeed, the best method for the detection of râles; but this procedure is sometimes very difficult in the Army.

8. *Disposition of the Cases.*—After this preliminary examination, if the man's lungs are found to be normal, his name is checked off his company's roster, which should always accompany every organization of men to be examined, and he is told to dress and return to his barracks. If anything abnormal is found, he is requested to wait and later is again examined, this time by each member of the board. He is then either passed or sent before the final disability board for its decision. This board should consist of the president of the tuberculosis board and two other members chosen by him. This group of three should have the final word as to the disposition of all doubtful lung cases referred to them. They should be able to obtain sputum examinations and roentgenograms, and also, if possible, have access to an observation ward, where the especially doubtful cases may be watched for a period of not more than ten days, by which time some disposition should be made of every case. Every medical officer sending a case before this board should be informed as to its disposition, as otherwise he will learn little and lose interest.

THE FIRST PLATTSBURG RESERVE OFFICERS' TRAINING CAMP

At the first Plattsburg reserve officers' training camp, the board consisted of three members, Major (then Lieutenant) J. C. Gittings, Major (then Lieutenant) J. W. Price, and myself. As we started work in the middle of summer, with the weather warm and clear every day, the examination of the entire camp, with the exception of one company, was carried on outdoors under the trees. This proved very satisfactory, as there was no shuffling of feet on wooden floors to contend with, and other small noises did not disturb as they do in a room. This, without a doubt, was the finest group of physical manhood that we have encountered anywhere. Each day we examined one company from 11 o'clock to a little after 12, and another company from 4 to shortly after 5 o'clock. These were the only hours the men could be spared from their training. The rest of the day we had for the reexamination of our doubtful cases, picked out of the line, or, as we always termed them, "hold-ups." Our results in this camp are given in Table 2.

TABLE 2.—EXAMINATIONS AT FIRST PLATTSBURG OFFICERS' TRAINING CAMP

	Number.	Per Cent.
Men examined	4,455	....
Tuberculous cases	10	0.22
Rejected for tuberculosis	5	0.11
Recommended for special service	4	0.09
Men with healed lesions, passed for active service	1	0.02
"Hold-ups"	325	7.20
"Hold-ups" who presented abnormal signs with negative history	118	2.60
Men presenting positive history with normal signs	156	3.50
Men presenting positive history, abnormal signs	51	1.10
Men with enlarged cervical glands or scars	19	0.42
Men presenting evidence of old empyema	14	0.31

FORT ETHAN ALLEN, VERMONT

After finishing our examination of the first Plattsburg reserve officers' training camp, the same board was ordered to Fort Ethan Allen, Vt., to examine three regiments of cavalry, stationed at that post. These were all enlisted men of the Regular Army. Here the examinations were carried on indoors and under ideal conditions, as each examiner had a private examining room for his own use. The men were examined in groups of five, ten or twenty each, depending on the size of the room and the desire of the examiner. It was at this place and under these conditions that in one day, one of us examined 163 men, while another examined 162, which was our record day and showed us clearly that 100 examinations a day should be the high limit for each physician, if the examination is to be of much value. The results we obtained in this camp are given in Table 3.

TABLE 3.—EXAMINATIONS AT FORT ETHAN ALLEN

	Number.	Per Cent.
Men examined	4,042	
Tuberculous cases	18	0.44
Rejected for tuberculosis	12	0.29
Recommended for special service	0	
Men with healed lesions, passed for active service	6	0.15
"Hold-ups"	333	8.20
"Hold-ups" who presented abnormal signs with negative history	49	1.20
Men presenting positive history with normal signs	229	5.60
Men presenting positive history, abnormal signs	55	1.30
Men with enlarged cervical glands or scars	10	0.24
Men presenting evidence of old empyema	5	0.12

THE SECOND PLATTSBURG RESERVE OFFICERS' TRAINING CAMP

At the second Plattsburg reserve officers' training camp, our board again consisted of three members, Major (then Captain) A. P. Francine, Major (then Lieutenant) J. W. Price and myself. Our duties this time were to examine the hearts of the entire command, as well as the lungs. This work has already been reported,[1] but as the report dealt more fully with the cardiovascular part of the work, I will merely mention again a few points about the lung examinations. Here we found the working conditions very favorable, as each of us had a separate room in which to work. The physical type of the men we examined was again excellent, but on the whole not as good as the first Plattsburg camp, and, as will be seen, the percentage of tuberculosis was nearly twice as great. The details of the examination will be found in the article mentioned,[1] so I need not reiterate them here. For the sake of comparison I will give our findings. The most marked difference from our previous examinations was in the smaller number of "hold-ups." This, I think, was largely due to the fact that we were beginning to doubt the value of history taking, and, I believe, the sergeant who asked the men the questions, must have overheard us discussing this point, and become a bit doubtful himself as to the use of asking every man personally the four questions, for one day I happened into the large room, where the men collected before coming to us, just as the sergeant called them all to attention and asked, at the top of his voice, if any one of them had had tuberculosis in the family, or had had pleurisy, spat blood, or had a cough for a month or more. One can easily see why this method would not be particularly conducive to bringing out positive histories, or, as we used to term them, "history hold-ups," especially when these men were all working for commissions, and were very reticent about answering any of these questions in the affirmative, even when questioned personally by one of us. Besides examining the prospective officers at this camp, we examined 584 regulars. The results are given in Table 4.

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[1] Francine, A. P.; Price, J. W., and Trudeau, F. B.: Cardiovascular Lesions and Tuberculosis, The Journal A. M. A., Dec. 22, 1917, p. 2110.

TABLE 4.—EXAMINATIONS AT SECOND PLATTSBURG RESERVE OFFICERS' TRAINING CAMP

	Reserve Officers.		Regulars.	
	No.	Per Cent.	No.	Per Cent.
Men examined	3,134		584	
Tuberculous cases	13	0.41	7	1.20
Rejected for tuberculosis	8	0.25	5	0.85
Recommended for special service	2	0.06	1	0.17
Men with healed lesions passed for active service	3	0.095	1	0.17
"Hold-ups"	104	3.30	42	7.20
"Hold-ups" who presented abnormal signs with negative history	42	1.30	8	1.30
Men presenting positive history with normal signs	51	1.60	29	4.90
Men presenting positive history with abnormal signs	11	0.35	5	0.85
Men presenting enlarged cerical glands or scars	1	0.03	1	0.17
Men presenting evidence of old empyema	4	0.12	0	

CAMP DEVENS, AYER, MASS.

At Camp Devens conditions were entirely different from any of the camps in which we had worked, chiefly on account of the far greater number of men to be examined, and secondly, it was the first experience for most of us in one of the large Army cantonments. The examining board consisted of fifteen members and was divided into five smaller boards of three members each. As, I believe, our final results are to be published by our president, Major Joseph Pratt, I will confine my remarks to a summary of the findings of my own local board, composed of two other members: Major (then Captain) T. J. Abbott and Capt. (then Lieutenant) E. P. Eglee. As will be seen, the greater part of our work was done among the drafted men of the National Army. We also had occasion to examine the One Hundred and Twenty-Fifth Regiment of Engineers, who were practically all enlisted men of the Regular Army, and happened to be stationed at this camp. During these examinations a written history of from eight to ten questions was taken of every man in camp. I am unable to use as much data in summing up our results at Devens as I have used in the summary of the work at the other camps, but the essentials are given in Table 5.

TABLE 5.—EXAMINATIONS AT CAMP DEVENS

	National Army.		Regular Army.	
	No.	Per Cent.	No.	Per Cent.
Men examined	4,167		1,455	
Tuberculous cases	34	.81	8	.55
Men rejected for tuberculosis	24	.57	8	.55
Men recommended for special service	1	.02	0	
Men with healed lesions passed for active service	9	.21	0	

TABLE 6.—SUMMARY

	Prospective Officers.		Regulars.		Nat. Army.		Total.	
	No.	P.C.	No.	P.C.	No.	P.C.	No.	P.C.
Men examined	7,589		6,081		4,167		17,837	
Tuberculous cases	23	.30	33	.54	34	.81	90	.50
Men rejected for tuberculosis	13	.17	25	.41	24	.57	62	.34
Men recommended for special service	6	.07	1	.01	1	.02	8	.04
Men passed for active service	4	.05	7	.11	9	.21	20	.11

CONCLUSIONS

1. A tuberculosis examining board should not work more than six hours a day.
2. The number of pulmonary examinations a day for each medical officer should be at least seventy-five but not exceed 100.
3. The routine taking of histories in this work was of little value.
4. The one most important procedure in the pulmonary examination is auscultation for râles after cough, performed preferably and if possible at the end of expiration.
5. The disability board should consist of three members, the president of the examining board and two others chosen by him from the members of the board. This board should have final disposition of all lung cases referred to it.
6. The average incidence of tuberculosis among the various branches of the Army which we studied is 0.5 per cent. The percentage is slightly lower than this in the reserve officers and slightly higher in the National Army; while our Regular Army men maintain just this average.

OBSERVATIONS OF A TUBERCULOSIS EXAMINER IN THE ARMY

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The tuberculosis examining board effected an organization in this cantonment during the latter part of November, 1917, and has since been engaged in the examination for pulmonary tuberculosis of all drafted men reporting to this camp. The work of a tuberculosis examining board is in no way connected with the activities of the base hospital. It is essentially a camp board making a field survey for tuberculosis so far as it concerns the men assigned to the depot brigade or the several organizations within the division. The work of a tuberculosis examining board, omitting the details incident to a tuberculosis survey, may be compared with that of a medical officer holding a sick call when it is necessary to examine hurriedly a large number of men, collecting those that need hospital attention.. Prior to the present method of discharging all drafted men on Form 1010 who are physically incapacitated for service on account of active manifest tuberculosis, these men were referred to a disability board for discharge, the tuberculosis examining board reporting on the number and percentage of pulmonary defects referred to the disability board. Those cases of lung defects and lesions of an unimportant nature from a clinical standpoint, yet incipient, were not reported to the disability board, the services of these men being of value to the government, but were taken into account as percentage of tuberculosis found, Class A incipient, closed.

Incipient pulmonary tuberculosis has been defined as an infiltration limited to the apex of one or both lungs or a small part of one lobe; with no tuberculous complications; with slight or no constitutional symptoms, including gastric or intestinal disturbance, rapid loss of weight and slight or no elevation of temperature or acceleration of pulse at any time during the twenty-four hours. Expectoration is usually small in amount or absent, and tubercle bacilli may or may not be present. A further classification according to symptoms was found practicable and adopted.

Incipient A would depict a lesion with symptoms found in the present incipient stage; incipient B, an incipient lesion with symptoms of the present moderately advanced stage; incipient C, an incipient lesion with symptoms of the present far advanced stage. This classification was not a matter of official record, but merely statistical for the information of the president of the tuberculosis board.

In military practice it is of the greatest importance to determine promptly whether or not tuberculosis is present, and to hold to the service all men not presenting evidence of the disease on chest examination. Examiners without the necessary clinical experience may misinterpret physical signs and make unnecessary rejections for too slight causes. The healed and quiescent lesion in the absence of moisture may present difficulties in diagnosis that experience alone may enable us to overcome. Again, the diagnosis of incipient pulmonary tuberculosis in the absence of râles and confined to the apex of an upper lobe is not always an easy task, especially when there is no constitutional disturbance. It would not be amiss in Army work to establish certain standards to prevent unnecessary rejections for causes that would not warrant rejection when based on misinterpreted physical signs.

Long before there is softening of a tuberculous process changes in breath sounds occur.

We study the quality and strength and note the relations between inspiration and expiration, with special reference to their nature and duration. The production at the apex in incipient tuberculosis is a not clear, hoarse, vesicular sound of vibratory character first called to our attention by Bandlier, its production often depending on a soft swelling of the finer air passages (Detweiler) or small isolated rhonci not yet accompanied by secretion in the bronchioles (Sahli) or on the air in consequence of the existence of small, airless nodules entering the alveoli by fits and starts (Turban). The cogwheel breathing, so early heard, occurs in infiltrated areas, nearly always accompanied by vesicular breathing of an exaggerated nature. When confined to one apex, it is of significance.

It is rather remarkable to what extent these early adventitious sounds may be elicited in crowded and at times very noisy examining rooms.

It is not an untenable theory that the tuberculous process begins at the hilum in childhood and is disseminated throughout the lung as a peribronchial process, often limited permanently to the deep lung, reaching the periphery when there is a failure of immunity to tuberculosis, and producing the disease in a clinical and manifest form. In these cases the clinical manifestations of tuberculosis appear at the surface of the upper lobes.

A soldier with tuberculosis is a distinct liability. Colonel Bushnell has pointed out that tuberculosis examiners owe it as their duty to the government to exclude from the Army men who will cripple it in effectiveness and swell the pension list. At the same time they are expected to hold to the service men not afflicted with manifest disability. Two classes of men, as stated by Colonel Bushnell and frequently observed by examining surgeons, will present themselves to the examining board: those who wish to serve, yet suspect that they have tuberculosis, endeavoring to conceal their past history and present symptoms, and those who desire exemption, who will give a history and claim symptoms tending to mislead the examiner. It would, indeed, make for inefficiency were not the examinations of drafted men confined to objective facts and physical diagnosis. Statements of applicants must be supported by physical signs, but otherwise not given weight. We fully realize the need for haste in the present emergency, and the consequent practice of percussion and auscultation in unfavorable surroundings; yet notwithstanding all this, cases of well-marked manifest tuberculosis are detected in practically every instance. Quiescent and healed lesions not far below the clavicle are the types of pulmonary tuberculosis most frequently overlooked by surgeons on examining boards, reactivation later occurring.

The first report to the Surgeon-General on the tuberculosis survey in this camp covered the examination of 21,700 men. The total number of cases of tuberculosis found was 204, or 0.94 per cent.; cases recommended for discharge from the service, 138, or 0.636 per cent.; incipient pulmonary tuberculosis, Class A, 66, or 0.304 per cent. In the second increment, 5,396 men were examined. The percentage of rejections from the service was 0.685. In the third increment, 6,359 men were examined; the percentage of rejections was 0.519. In the fourth increment, 9,457 men were examined; the percentage of rejections was 0.327. In the fifth increment, 15,410 men were examined; the percentage of rejections was 0.24. A total of 58,322 men were examined. Undoubtedly the decreasing percentage of rejections was due in large measure to a rise in the physical standards demanded by the local boards, and the knowledge that was soon acquired that active and manifest pulmonary tuberculosis would be detected by the Army surgeons and promptly rejected. In considering the fact that all men examined by the tuberculosis board had previously been examined by reputable and well qualified physicians, and in many instances by distinguished specialists, this seemingly low average of rejections is not normal.

To the casual observer an analysis of these percentage tables might lead him to believe that many cases of tuberculosis had escaped detection. As a matter of fact, the records of the clearing station at Camp Grant and the laboratory at the base hospital show only twenty-three positive sputum reports since the organization of the tuberculosis examining board the latter part of November, a comparatively small percentage to the number of chest examinations made, and this notwithstanding the fact that considerable time had elapsed from the date of the primary examination to the departure of the soldier from the camp. With this small percentage of tuberculosis, it is evident that the healed quiescent lesion did not reactivate to an appreciable extent if overlooked, notwithstanding the fact that we are not as yet able to establish any standards of resistance to a given amount of tuberculous infection. The experience of the examiner and the personal equation must enter largely into the situation. Practical experience as a clinician and large experience as an examiner of soldiers are essential to the solution of this problem.

TUBERCULOSIS IN FRANCE

Major Edouard Rist has shown that at the clearing stations of the sixth French army where laboratory and sputum examinations were made, where the roentgen ray was established, and a nose and throat expert employed, the number of discharges on account of tuberculosis was greatly reduced. Of the first 1,000 cases examined for the diagnosis of tuberculosis, only 193 had active tuberculosis. These were men who had served at the front, a percentage of less than 20 of the previously diagnosticated cases. During the first year of the war, no less than 86,000 men were discharged from the French army on account of pulmonary tuberculosis. These figures spread alarm in France and the Allied countries, and especially in the United States. The impression prevailed that the whole French nation was permeated with tuberculosis and was sure to die from it if immediate measures were not taken for its prevention. A phthisiophobia was created in this country which might well account for the exceedingly high percentage of rejections from our army for pulmonary tuberculosis until the Adjutant-General finally issued an order requiring ocular demonstration of the tubercle bacillus as confirmatory evidence of the disease before rejection of soldiers for pulmonary tuberculosis could be accomplished, once enlisted, and then only of their own free will and accord.

Returning to the French army, all men in the war zone with a diagnosis of tuberculosis were sent to a clearing station where they were kept for a week and thoroughly examined. The result of this procedure was that several hundred soldiers were sent back to duty at the front who, if there had been no clearing station for such cases, would have been sent to the base hospital with a diagnosis of tuberculosis, would have been kept for months in the interior, and the greater part would have been discharged finally from the military service. As a matter of fact, between 80 and 90 per cent. of these supposedly tuberculous men were not tuberculous at all.

Tuberculosis examining boards in our army should profit by the mistakes of our allies, and we find this largely an incentive for a greater conservatism and careful study on recall of all diagnosed as tuberculous by examining surgeons on general boards. It is fair to assume that tuberculosis will not break out in the American Expeditionary Forces to the extent that it has in other armies, on account of the thorough examination and sifting out of consumptives at training camps. Surgeon-General Gorgas says, "I consider that prevention of tuberculosis remains the most important health problem in the country, in spite of all the work that has been done." Tuberculosis continues to present more complex social and economic problems than any other known disease, causing the greatest amount of suffering and dependence.

TUBERCULOSIS IN CHICAGO[1]

At a recent meeting of the American Public Health Association at Washington, D. C., statistics incident to a survey that I made showing the prevalence of tuberculosis and its social and economic conditions in the city of Chicago were presented. This tuberculosis survey included a district of 8 square miles with an estimated population of 371,259, the total number of persons examined being 165,700. Of this number 14,282, or 28.6 per cent., were found to be tuberculous. An analysis of 6,610 cases classified as first, second or third stage cases shows that 4,407, or 61 per cent., were incipient, 2,240, or 33 per cent., moderately advanced, and 323, or 4.8 per cent., far advanced.

It is from this and other similar environment that large quotas of men are supplied to the National Army. It is of interest, therefore, to note more in detail just what was found in the examination of employees of large business houses. In one candy factory there were more than 1,000 people employed. Of this number 698 were examined, and 100, or 14 per cent., were found to be tuberculous. This factory distributes its products over almost the entire civilized world. Examination was made of 1,514 employees of the U. S. government in the Chicago postoffice, and seventy, or 4.6 per cent., were found to be suffering from tuberculosis. Many of the employees evaded examination for fear of losing their positions if found tuberculous. The Chicago Telephone Company showed forty-nine cases in 520 examined, or 9.4 per cent. The employees of every restaurant and hotel, including the very best in the city, showed from 8 to 20 per cent. suffering from easily detected tuberculosis. The Cook County jail is old and poorly ventilated, with no sunlight penetrating to 99 per cent. of the cells, which are cement cubicles with iron grating doors. Out of 427 regular inmates examined and 317 transients, 102 of the regular inmates were diagnosed tuberculous and 100 cases were found among the transients. All told, 27.1 per cent. of the population of the jail were tuberculous.

With millions of consumptives throughout the United States there is hardly a city, village or community free from the disease. We have all doubtless been infected since childhood, and we have bestowed on us an immunity against overwhelming infection, making us a less susceptible race than primeval man. Race immunity has handed down to us through successive generations a resistance to tuberculosis by recovery from the disease incident to mild infection, oft repeated.

METHODS OF ERADICATING TUBERCULOSIS

The methods of stamping out tuberculosis may be grouped under four headings:

1. Removal of those predisposing factors tending to lower the physiologic resistance of the individual, that is, bad housing, overcrowded, poorly lighted and badly ventilated tenements, inadequate and poor food supply, and insanitary conditions in general.
2. Removal of foci of infection, by hospitalization and segregation of open cases so far as practicable.
3. Effecting a cure of incipient closed cases at a time when this is possible and before there is softening of lung tissue.
4. Eradication of bovine tuberculosis and more widespread knowledge of the dangers resulting from the consumption of meat and milk from tuberculous cattle, notwithstanding the fact that the bovine bacillus is less virulent than the human bacillus for man.

Chemical Manufacture in Uruguay.—In 1915, when on account of the war, the scarcity of chemicals began to be felt in Uruguay, a project for making chemicals was revived and their manufacture begun on a commercial scale. This was the outcome of a recommendation by Dr. Latham Clarke, an American specialist in charge of the National Institute of Industry at Montevideo in 1913. At that time, apparatus was purchased in the United States but the work was postponed. At present, a large number of chemicals are made, including alcohol, ammonia, nitrocellulose, benzene, nitrobenzene, sodium bicarbonate and carbonate, ether, potassium products, barium and sodium sulphate, chloroform, sodium benzoate, iodoform, hexamethylenamin, glycerin, hydrogen peroxid, silver nitrate, salicylic acid, acetylsalicylic acid, creolin and acetone.

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[1] Results of this tuberculosis survey, presented in a paper read by Dr. John Dill Robertson, Commissioner of Health, Chicago.

THE STERILIZATION OF WOOLEN BLANKETS AND UNIFORMS

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AND
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The prevention and control of contagious diseases in Army cantonments and base hospitals is a complex problem which requires special measures to be worked out in sufficient detail to result, so far as possible, in automatic execution.

Contact infection, which includes hand-to-mouth infection and infection by the respiratory route, is accepted as being fundamentally important in the prophylaxis of contagions. A scheme, to be effective, should provide for measures involving early diagnosis, prevention of cross-infection in ambulances en route to the base hospital, rigid examination of patients in the receiving ward, the use of throat cultures to determine proper grouping of patients in wards, development of the cubicle system on the principle of isolation in each case, the wearing of face masks, and rigid ward discipline to develop and maintain the so-called aseptic technic. Important among preventive measures is proper sterilization of woolen blankets and uniforms.

The sterilizer issued the base hospital has proved satisfactory in the routine sterilization of cotton goods, surgical dressings and gowns, but destructive to woolen goods. It was found necessary, therefore, either to dispense with the routine sterilization of woolen goods or to modify the method used in sterilization of cotton goods, which consisted of sterilizing with from 12 to 15 pounds steam pressure (from 242 to 250 F.) for from ten to thirty minutes.

Numerous experiments and modifications demonstrated that, in the sterilization of woolen goods, certain precautions must be observed, (1) to produce effective sterilization; (2) to avoid damage to woolen fibers, and (3) to prevent shrinkage. These precautions should be discussed.

STERILIZATION

Bacteriologic cultures of pneumococcus, streptococcus, staphylococcus, influenza bacillus, pyocyaneus and anthrax spores were effectively sterilized with 12 pounds of steam (242 F.) for ten minutes, or at atmospheric pressure (212 F.) for one hour, if the following precautions were taken:

1. That a vacuum of from 15 to 20 inches be established in the chamber of the sterilizer before the introduction of steam.

Experimental Proof.—Without initial vacuum, staphylococci and anthrax spores placed in the center of a bundle of blankets were not killed. With initial vacuum, all organisms were killed.

2. That the sterilizer be not overfilled.

Experimental Proof.—When the sterilizer was tightly filled, anthrax spores in the center of the sterilizer were not killed by 15 pounds of steam in fifteen minutes. When the woolen blankets and uniforms were loosely placed on trays of the sterilizer, all anthrax spores and other organisms were killed by 12 pounds pressure in ten minutes.

DESTRUCTION OF WOOLEN GOODS

The length of time woolen goods are exposed to heat is equally important to the degree of heat used (within the limits of 212 and 242 F.)

Experimental Proof.—1. No damage to woolen goods resulted when subjected to steam at atmospheric pressure (212 F.) for one hour. 2. No damage resulted when woolen goods were subjected to 12 pounds pressure (242 F.) for ten or twelve minutes. 3. If exposed for a longer time, even at a lower temperature, slight or severe damage resulted, as shown by the following test:

Blankets subjected to 6 pounds pressure (230 F.) for thirty minutes evinced abnormal dryness, increased friability and loss of vitality of fibers and texture.

SHRINKAGE

Sudden change of temperature is the cause of shrinkage.

Experimental Proof.—1. Blankets and two olive drab coats, treated only once, shrank when, at the end of the sterilization, the sterilizer door was thrown open to allow rapid cooling. The blankets lost one-half inch in length and breadth and the olive drab coats lost from one-fourth to one-half inch in the collar. 2. A blanket was put through the sterilizing process eight times without shrinkage when attention was given to avoidance of sudden change of temperature by opening the sterilizer door only 4 inches for ten minutes.

COMMENT

The sterilizer issued to this base hospital was manufactured by the American Sterilizer Company and given the Serial No. 10482. As indicated above, blankets or uniforms should be placed loosely on the wire trays in the sterilizer. Fifty uniforms and 150 blankets, respectively, represent its maximum capacity in one sterilization. The capacity of the sterilizer is sufficient to meet the demands of this base hospital which has averaged from 1,000 to 2,100 patients during the past several months. Wrinkling of uniforms is avoided by the use of hangers. This reduces the capacity of the sterilizer to twenty-five uniforms.

For several months past, routine sterilization of all clothing except shoes, worn by patients with contagious diseases, has been accomplished before being sent to the receiving ward for storage. All blankets and bedclothing have likewise been sterilized immediately after a patient that has recovered from a contagious disease is discharged from the hospital or transferred to another ward. Early in our experience the atmospheric pressure method was preferred as it theoretically offered a greater margin of safety as to preservation of valuable property. The past five weeks, however, since time exposure has proved more important than the degree of heat used (within limits of 212 and 242 F.), the shorter or pressure method has been adopted and found entirely satisfactory if conducted under reasonably careful observation.

SUMMARY

The following procedures effectively sterilize woolen goods without deterioration or shrinkage:

1. The woolen blankets or uniforms are placed on hangers or loosely on the trays in the sterilizer.

2. Sixty pounds of steam is introduced into the outer jacket of the sterilizer to prevent subsequent condensation of steam within the sterilizing chamber.

3. A vacuum of from 15 to 20 inches is created in the sterilizer chamber to facilitate penetration of the clothing by steam.

4. Sterilization is performed with either (*a*) 0 pounds of steam for one hour, designated as the atmospheric pressure method, or (*b*) 12 pounds of steam for ten minutes, designated as the pressure method.

5. Again a vacuum of from 15 to 20 inches is produced to facilitate drying.

6. The door of the sterilizer is opened about 4 inches for ten minutes to allow gradual cooling of the contents of the sterilizer.

Therapeutics

HEATSTROKE; INSOLATION

The fact that the treatment of heatstroke is frequently unsatisfactory and the outcome frequently fatal is an excuse for repeatedly outlining our knowledge of this condition. Although sunstroke is perhaps more serious and more fatal than heat prostration, the latter not only may be fatal, but is even more likely to cause prolonged disability. With sunstroke the victim may become suddenly unconscious and die within a few hours or even minutes. He may not come out of the comatose condition, or he may die with evidence of heart weakness. He may have convulsions, and if he is not comatose, he may complain of dizziness, nausea, headache and disturbed vision; the pulse is rapid, and the temperature may be exceedingly high. In heat prostration the symptoms are those of shock, with weak pulse, subnormal temperature, clammy perspiration and heart failure. There may be nausea and vomiting.

DIAGNOSIS

A patient found comatose, and having been exposed to intense heat, must have his condition diagnosed from many other serious conditions that cause coma or convulsions. An epileptic convulsion, with coma, or several epileptic convulsions and a comatose condition, may be difficult to differentiate from heatstroke, in a patient unknown to the physician. The most important immediate distinction is the high temperature of the sunstroke as against a moderately increased temperature in the epileptic. The epileptic will be very cyanosed at first, but his color soon improves. A patient suffering from alcoholic stupor can generally be aroused, and the temperature is either normal or subnormal. The odor of alcohol on the breath does not preclude any other cause for the coma; in other words, the ambulance physician and the police surgeon should be very careful not to transport a stupid patient to jail because he smells of alcohol. Head injuries should always be sought for whenever a patient is found comatose. The temperature is likely to be subnormal. There may be symptoms of paralysis of one side or the other of the body. In coma from apoplexy or from injury to the head, with hemorrhage, there is stertorous breathing, with a temperature normal or a little above normal; the pupils are likely to be dilated, or one may be dilated even if the other is not; and the difference in the flexibility or mobility of the extremities will generally show, even in coma, that there is paralysis. Coma from uremic poisoning will show no great rise of temperature, if any, and there may be repeated convulsions. In diabetic coma the temperature will also be about normal; the breath may give the peculiar sweetish odor.

Even if the temperature is high and sunstroke is suspected, in every case the patient should be catheterized and the urine quickly examined for sugar and albumin.

In the coma of opium poisoning the pupils are small and pin-point, the breathing very slow, the pulse generally slow and full, and the temperature normal or subnormal. In chloral poisoning there is subnormal temperature, a weak pulse, the pupils may be slightly dilated, and the condition is that of collapse. These are only brief suggestions, to urge a more careful study of every person found comatose.

Gauss and Meyer[1] studied 158 patients who suffered from heatstroke and were brought to the Cook County Hospital, Chicago. The seriousness of this affliction is shown by a death rate of 44.3 per cent. in these cases. It is interesting to note that Gauss and Meyer found that most of the patients gave a history of alcoholism, in greater or less degree. Most of the patients were thinly, that is, properly clothed for the summer season; most of the patients ate meat daily; a few ate meat three times a day. Some patients had prodromal symptoms of weariness for several days, or complained of headache and dizziness and great thirst, and some nausea and vomiting. Some patients had no prodrome whatever. When there was one or more days of more or less disturbing conditions or debility, the temperature was found not to be high; that is, these were more similar to heat prostration. When there was a very short period of symptoms of sunstroke, the temperature was generally, but not always found to be high. In some heat prostrations there was as low a temperature as 94, while in some cases of sunstroke the patients showed as high a temperature as 114. The pulse rate was generally proportional to the temperature. Most of the comatose patients had involuntary bowel movements.

As emphasized above, the urine of all stupid patients should be examined. Gauss and Meyer found that of twenty-five patients whose urine was examined on the second day of illness, all showed hyaline and granular casts, and some showed albumin. Of the 158 patients, 129 were comatose when admitted, and fifty-eight died without regaining consciousness; ten had relapses after gaining consciousness and died. Of those patients who recovered, the time of return to normal temperature varied up to three days.

It has long been noticed that a patient who has once had an attack of thermic fever readily has a recurrence with much less exposure to the sun. On the other hand, it has been found that a healthy white man can become acclimated to most intense tropical heat, and Shaklee[2] finds that the amount of sweating necessary to keep the temperature of the white man normal in a tropical climate is not excessive, even when he is doing physical work. He does find it essential, however, that the white man should have had for some little time a suitable diet, and should take up his work in the sun gradually, until he is able to do the full amount required.

Gradwohl and Schisler[3] have studied thermic fever by laboratory methods, and find that insolation occurs when heat accumulates in the body and when the body does not excrete "its metabolic end-products, such as urea, nitrogen, creatinin and uric acid." In other words, insolation is an autointoxication due to heat retention and the retention of too large an amount of these substances. The condition in heatstroke is analogous to uremia. These investigators also found that there was a high retention of nonprotein nitrogen constituents in the blood, as occurs in renal insufficiency. They found that this study of the nonprotein nitrogen of the blood was of prognostic value, as when the nonprotein nitrogen of the blood was high, even if the symptoms were not serious, the patients died. On the other hand, if the symptoms were seemingly serious and the nonprotein nitrogen retention was low, the patient did not die. They also found that there was increased creatinin in the blood to the danger point.

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[1] Gauss, H., and Meyer, K. A.: Am. Jour. Med. Sc., 1917, **154**, 554.

[2] Shaklee, A. O.: Philippine Jour. Sc. (B), 1917, **12**, 1.

[3] Gradwohl, R. B. H., and Schisler, E.: Am. Jour. Med. Sc., 1917, **154**, 407.

In hospital patients that live more than a few hours, this blood examination should be made to ascertain, by a large number of statistics, whether the kidneys are really always at fault in serious sunstroke.

Mayer[4] believes that deaths from high temperature may be due to accumulation of acid in the tissues. If this is true, it would be an indication for rectal injection, or perhaps venous injection, of alkalis.

Postmortems on patients who have died of sunstroke show congestion and cloudy swelling of the internal organs, especially of the heart, liver and kidneys; there may be edema of the brain and lungs; and there may be small hemorrhages found in different parts of the body. The blood is likely to be fluid and have a diminished coagulability. McKenzie and LeCount[5] describe the findings in thirty-seven necropsies performed on patients who have died of heatstroke, and state that the cerebrospinal fluid in all cases is clear, colorless, and usually increased in amount. They found edema of the brain alone was present in twenty-two cases, edema of the leptomeninges alone in nine cases, and edema of both the brain and leptomeninges in four cases.

They urge the advisability of having large amounts of water drunk by all persons subjected to or working in intense heat.

TREATMENT

In the routine treatment of sunstroke with high temperature, if the temperature is at all high, the patient is generally put into a tub of cold water. The head is supported, a thermometer is placed in the rectum, ice is added to the water, and the patient's body is vigorously rubbed. It is generally noted that the temperature may stay more or less stationary and then fall rapidly; therefore, if the thermometer in the rectum—which should be read every few minutes—shows a fall to 103 or perhaps 102, the patient must be immediately taken out of the tub, as the temperature is likely to fall rapidly, even to subnormal. If the temperature goes below normal, the patient should be surrounded with hot water bags. During the tubbing treatment of course an ice cap is kept on the head.

This ice tubbing treatment has been handed down from book to book and from hospital to hospital. As many times noted, and also vigorously recommended, the failing heart, after the severe measures used to reduce the temperature, is stimulated with strychnin, digitalis, strophanthin, caffein, etc., by the usual methods. The question almost asks itself whether or not this treatment is too severe. One would almost wonder if the death rate would be much more if nothing at all was done to the patient. Less shock would be caused, and consequently less heart failure, if the cold was applied by affusion or by ice coils to the abdomen and an ice cap to the head and perhaps a hot water bag to the feet. Or iced cloths might be wrapped about the patient and changed every few minutes.

Baruch[6] indicates that the mortality in sunstroke is much reduced if affusions of cold water are used instead of tubbing. Sprinkling the body with cold water and then directing an electric fan over the patient will cause rapid evaporation and cooling. Is it possible that it would be too far a cry to try, as has been suggested, warm baths, in sunstroke, to promote perspiration (nature's method of reducing temperature) which is absolutely in abeyance in the thermic fever patient? Rectal injections of ice water are always of benefit, as well as the crunching and swallowing of cracked ice, if the patient is not stupid.

With the pathologic findings, and the chemical findings described above, showing that the kidneys are always in trouble and that the eliminaion of body poisons is at a low ebb, severe ice applications are extremely questionable; they simply increase the kidney congestion that has already started.

When the patient is flushed, full blooded, and the pulse is bounding and full, venesection would seem indicated to relieve the pressure on the cerebral vessels; and, as necropsy often shows edema of various parts of the brain, spinal puncture should be considered.

If the patient recovers consciousness, alkaline drinks would seem advisable, as in any serious condition like this acidosis readily adds its quota to the seriousness and danger of the symptoms. For many days the food should be cereals and starches, with plenty of water, and no meat.

The treatment of heat prostration or heat exhaustion is that of shock; gentle circulatory stimulation, body warmth, the coolest general atmosphere possible promoted by electric fans, absolute rest and quiet, and a prolonged convalescence, with tonics and good food.

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[4] Mayer, A. G.: Am. Jour. Physiol., 1917, 44, 581.

[5] McKenzie, Pierce, and LeCount, E. R.: Heat Stroke, The Journal A. M. A., July 27, 1918, p. 260.

[6] Baruch, Simon: The Principles and Practice of Hydrotherapy, Ed. 3, New York, William Wood & Co., 1908, p. 384.

Professional Ethics in Cuba.—The *Revista de Medicina y Cirugia* of Havana relates that the Medical Press Association of Cuba has decided to undertake a tenacious campaign against quackery, quack advertising and quack practices, and against acts committed by physicians that do not conform to professional ethics. It says, "Notwithstanding the resolutions voted in recent national representative gatherings, the evils in the medical corps are increasing instead of diminishing. It is actually scandalous that, in the very capital of the nation, individuals with university degrees are serving as protectors for animal-magnetism healers, and that in some laboratory and other institutes—perhaps behind the back of their medical directors—efforts are made to get the clients away from physicians who send their patients there exclusively for some laboratory examination." Drs. Aragon, Jr., Montoro and Arteaga brought up the matter at the meeting of the Medical Press Association. Our exchange adds, "It is hoped that something can be done, backed by the authority of the Public Health Service and the ministry for Public Instruction, to fight these elements which show such contempt for professional ethics and their university degree. Now that the first steps have been taken, let the work be continued by the Academia de Medicina, the Colegio Medico and other professional organizations."

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SATURDAY, SEPTEMBER 7, 1918

THE DIETARY HABITS OF AMERICAN COLLEGE GIRLS

In a highly important and as yet too little known investigation of the food consumption of more than 350 boys, ranging in age from 13½ to an average of 16 years, in the upper forms in a large private boarding school, Gephart[1] has furnished the basis for a new understanding of the dietary needs of youth. In the past it has been taught that the nutritive requirement of the adolescent boy or girl is a fraction of that demanded by the adult, the proportion depending in a measure on the relative size of the individual. Du Bois has shown that boys just before puberty have a high metabolism; indeed, their basal metabolism as measured by the heat production during sleep or complete rest without food, may be fully 25 per cent. above that of the adult. Gephart's statistics give evidence that the growing, athletic boys whom he observed were not satisfied with the conventional 3,000 calories of energy daily assigned to the average adult. It was shown that they not only took 4,350 calories daily at the table, but also bought 650 additional calories in food at a neighboring store, the principal item being chocolate. Lusk[2] makes the comment that the 5,000 calories are half as much again as a farmer at work would require. These data explain the ravenous appetite of boys. Lack of appreciation of this factor or lack of provision for it are the probable causes of much of the undernutrition seen in children of school age. In any event, those entrusted with the distribution of advice about the ration allowances of children in war time, when economy and patriotism tend to go together, ought to bear in mind the evident uniquely large needs of the adolescent organism.

Something somewhat comparable, perhaps, though far smaller in absolute figures, may be detected in the data relating to the food consumption in girls' colleges. A dietary survey completed during the past year in one of the dormitories of Vassar College by Macleod and Griggs[3] included nearly a hundred students whose average age was 19.4 years, height, 5 feet 4 inches, and weight, 123.9 pounds. Whether this may be regarded as definitely past the age of growth need not be debated here. The essential fact is that the food consumption in this group, too, was found to be larger than current assumptions had led the investigators to expect. It amounted to about 2,700 calories per person per day, aside from the additional food with which at least 65 per cent. of these girls supplement their college meals. Their supplementary food was usually sugar in some form, candies, cakes or ice cream. It is a question in the minds of Macleod and Griggs whether this is due simply to the taste for sweets which is instinctive in all young persons or is in response to a physiologic need. Although it is not practicable to determine the average value in energy of the extra food thus consumed, it was by no means inconsiderable. It is recorded that in certain instances the girls must have averaged well over 1,500 calories apiece in addition to that which they obtained at their regular meals.

A few further facts elicited in the Vassar study are of incidental interest. The inedible waste averaged 15.6 per cent., the edible waste being decidedly less. The average daily intake of protein per person was estimated at 99.6 gm., or nearly 15 per cent. of the total fuel value, surely no unduly low figure. In February, 1917, when these figures were collected, the cost per meal of food alone was found to average 14 cents, the cost of food, preparation and service being 18 cents. Meat required more than 40 per cent. of this expenditure, dairy products somewhat less than one third, and the other food types smaller proportions. Such, at any rate, are the food habits of a representative group of college girls, quite aside from the question as to whether they seem well justified when evaluated according to the views now concurred in by students of nutrition.

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[1] Gephart, F. C.: Boston Med. and Surg. Jour., 1917, **176**, 17.

[2] Lusk, Graham: The Science of Nutrition, Edition 3, New York, 1917, p. 559.

[3] Macleod, Annie L., and Griggs, Mary A.: Dietary Study at Vassar College, Jour. Home Economics, 1918, **10**, 97.

INFANT MORTALITY STATISTICS

The difficulties both of securing and of interpreting data on infant mortality are illustrated in a recent article on the infant mortality studies made by the Children's Bureau.[1] As is well known to those interested in vital statistics, satisfactory birth registration anywhere in the United States is a recent development, and it is still true that birth records in many places are so defective as to be unavailable for exact studies. One of the first objects, therefore, of the investigation made in eight cities by the Children's Bureau has been to secure a record of all infants born within the year in the community selected for study. Even without a systematic canvass it was found possible by the use of neighborhood inquiry and baptismal records to add greatly to the number registered. In Saginaw, Mich., for example, more than 13 per cent. (149) were added by this method to the number (1,113) already on record. It is obvious from the conditions revealed by these studies that still greater efforts should be made to secure the accurate registration of births throughout the United States.

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[1] Woodbury, R. M.: Quarterly Publications of the American Statistical Association, 1918, **16**, 30.

Although this is a time when human life is being lavishly spent for the high ideals of our country, it is a time also when for the same reasons life should be conserved and strengthened at every possible point. There is good reason to believe that the mortality in the first year after birth can be materially reduced by the application of known principles and methods. In order, however, to make such application and to understand what it is accomplishing, it is essential that each community should maintain a system of birth registration and see that the system is made effective.

Among the cities in which infant mortality has been studied, Baltimore affords some particularly interesting results. The Baltimore figures include for the first time in such studies, we believe, a sufficiently large number of colored infants to permit the calculation of a mortality rate, the rate for white infants being 95.9, for colored, 158.6. In the same city, striking racial differences are recorded, similar to those observed elsewhere, the Jews having the low rate of 51.0 and the Poles the high rate of 163.2. The rates for the artificially fed are from three to nine times those for breast-fed infants. Examination of the influences of some other factors leads to suggestive, if not convincing, results. The tabulation of infant mortality rates by the father's earnings, and the statement that "the mortality rate of infants whose mothers were gainfully employed during the lifetime of the infant was about twice the average rate" obviously need further analysis before they can be considered very illuminating. The fact that the infant mortality rate is much higher when the father's earnings are less than $450 than when more than $1,850 might be due partly to a difference in inborn vitality, correlated with the father's earning power, partly to a difference in the proportion of breast-fed and bottle-fed infants in the two groups, and partly to a difference in the number of children or the interval between births or to other unspecified factors. It has never helped very much in the realms of biologic speculation to term a correlated character a "cause." A cat is not deaf because it has blue eyes. In like manner it is necessary to analyze the apparent effect of the gainful employment of the mother—possibly due merely to the necessity for artificial feeding—and of the apparent effect of the size of the family—possibly due merely to the lack of proper spacing of births. It is evident that in all such considerations the age and experience of the mother form a factor of prime importance. The problem of the factors entering into infant mortality is without doubt far too complex to be solved by any but expert mathematical handling, such as it is now receiving from the authorities of the Children's Bureau. The most essential part of this study, however, as of all vital phenomena, is the gathering of correct data.

THE DIPHTHERIA PROBLEM

Despite the fact that diphtheria antitoxin has proved to be a therapeutic remedy of great importance in the management of a disease which was among the first to derive curative benefits from modern immunologic investigations, the presence of diphtheria among us still presents a serious hygienic problem. In spite of the extensive use of small prophylactic doses of antitoxin, the morbidity and mortality from diphtheria remain surprisingly high and constant. The carrier problem has not been solved. An estimate based on figures obtained a few years ago from the registration area in the United States indicates that the yearly mortality from diphtheria in this country is more than 23,000, the morbidity presumably being ten times greater. Hence we can only reecho the need which Captain Zingher of the New York Department of Health has voiced for a practical and efficient method of active immunization that will protect the child and adult population.[1] Such protection, he adds, should be applied early in life, so that an efficient active immunity will be produced during that period when individuals are most susceptible and the disease causes the greatest mortality, that is, from 1 to 5 years of age. The protection of the infant derived from the mother is only temporary, lasting about six to nine months after birth.

Two factors, in particular, seem to point to the possibility of progress in the control of the diphtheria menace. A valuable clinical test of the existence of immunity is afforded by the carefully studied Schick reaction, while the use of the newer toxin-antitoxin mixtures seems to be successful in producing an active immunization. To the investigation and development of these diagnostic and immunizing procedures much credit is due to the Research Laboratory of the New York City Department of Health. Recommendations emanating from this source are deserving of careful consideration. In this spirit we refer to the insistence of the assistant director[1] that all infants below 12 and if possible below 18 months of age should—of course, with the consent of their parents—be actively immunized with appropriate doses of toxin-antitoxin, irrespective of the Shick tests that the infants may show at the time of immunization. Beyond this age the question of immunization should be guided by the Schick reaction.[2]

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[1] Zingher, Abraham: Active Immunization of Infants against Diphtheria, Am. Jour. Dis. Child., August, 1918, p. 83.

[2] Practical details are given in Captain Zingher's paper referred to in Footnote 1.

The public program in this important matter is thus formulated: The active immunization against diphtheria should be carried out first of all by the private physicians in the different homes, where a majority of the infants can be reached. The toxin-antitoxin injections produce so little local or constitutional disturbance in young infants that the immunization at this early period of childhood seems peculiarly desirable. In large centers of population the milk stations, day nurseries, children's dispensaries and the infant and orphan asylums reach large groups of children of the age suitable for immunization. The children of preschool age found in kindergartens and those of school age should be tested first with the Schick reaction, and those giving a positive test actively immunized. Whether, the program continues, such procedures can be made compulsory in the schools will depend on the enlightenment of the community in which the work is to be carried out. Adults, especially those frequently or constantly exposed to diphtheria, such as physicians, nurses, orderlies and patients in contagious disease hospitals, should also be tested with the Shick reaction, and those giving a positive reaction actively immunized. This is, indeed, an ambitious plan, but it has a promising aspect of progress from the point of view of the modern sanitarian.

Current Comment

THE SELECTIVE SERVICE LAW AND PHYSICIANS

Many letters have been received concerning the relation of the new Selective Service Law to physicians. A few of these letters have been selected to be answered in the Queries and Minor Notes department. It may be said that, as a general proposition, there is no difference between the new and the old Selective Service Law except as to the ages included and the slight broadening of the terminology concerning exemptions. With special exceptions, all male persons who are above 18 years of age and have not reached their forty-sixth birthday on September 12 must register. The exceptions are those who have registered under the previous draft acts, whether or not called for service; officers and enlisted men of the Regular Army; officers appointed and men of the forces drafted under the previous draft act; "officers and enlisted men of the National Guard while in the service of the United States; and the officers of the Officers' Reserve Corps and enlisted men in the Enlisted Reserve Corps while in the service of the United States; and officers and enlisted men of the Navy and Marine Corps and officers and enlisted and enrolled men of the Naval Reserve Force and Marine Corps Reserve while in the service of the United States." As we have stated before, there are in the United States 75,000 physicians, including those already commissioned, under 46 years of age. The question of greatest interest is the disposition of physicians after their registration. There is nothing in the bill, as we read it, that provides for any different method of applying the selective service principles than that which has heretofore governed the disposition of those under 31 years of age. The Selective Service Boards are the only bodies empowered under the law to grant exemptions. Undoubtedly special regulations concerning physicians will be promulgated by the Provost Marshal-General. It is quite probable that in formulating these regulations the Provost Marshal-General will consult some or all of the Surgeon-Generals of the various services. As we stated last week, the problems of adequately providing for the medical needs of the Army and Navy and of the civil population are more complex than those affecting any other occupation, because of the great demand and the somewhat limited supply. Last week we outlined these demands, and it is not necessary to repeat them. The one question asked in most of the letters received is, What constitutes dependency so far as physicians are concerned? It has been suggested that physicians could not advance a plea for exemption on the grounds of dependency, since they are eligible for a commission, which would give an income sufficient to support a small family in fair circumstances. Local boards in some communities have refused to exempt physicians on the grounds of dependency for this reason; on the other hand, the opposite principle has been carried out by other local boards. In view of the large number of physicians now affected, these matters will no doubt also be considered in the special regulations concerning physicians.

BARLEY AS A WAR TIME SUBSTITUTE FOR WHEAT

When the United States Food Administration issued its appeal to this nation to "save the wheat," the advice was simultaneously given to make liberal use of substitutive cereals which may be available in greater abundance or lend themselves less readily to use overseas. Corn, rice, oats, rye and barley at once assumed a new prominence as "breadstuffs" for people little accustomed to consume them in such liberal portions as the new regimen seemed to demand. The belief, deeply ingrained in many persons, that wheat is an essential of good nutrition, has largely if not entirely been dispelled alike by the assurances of our foremost students of nutrition, and by the experience of a population that has voluntarily reduced its use of wheat so as to release more than 120,000,000 bushels for shipment to Europe in less than a year. If we are ready to admit that wheat is not indispensable,[1] there may still remain some concern regarding the nutritive virtues of the substitutive cereals. Polished rice has come into bad repute, perhaps unjustly or at least unnecessarily, because it is so milled as to lose its natural content of antineuritic vitamin. However dangerous the use of a diet deficient in vitamins may be, it should always be borne in mind in discussions of the milling question that, as a rule, man does not live by polished rice alone; nor does our population subsist on wheat or any other cereal to the practical exclusion of all other vitamin-bearing foods. This being the case, the problem of the wheat substitutes is narrowed to the question, not of their perfection as the bearers of all nutrient virtues, but rather of their relative value in comparison with wheat as a part of a mixed diet. In this respect the liberal use of corn (maize) has already well justified itself.[2] A recent study of the dietary qualities of barley by Steenbock, Kent and Gross[3] at the University of Wisconsin justifies the assertion that this cereal does not differ essentially in its nutritive qualities from maize, oats or wheat—a statement which "may serve to allay the fears of those dietitians concerned over the use of barley as a *wheat substitute.*" *Like the* other cereals, barley alone is unable to meet the demands of nutrition satisfactorily. By supplementing it with suitable protein, fat-soluble vitamin, such as butter or cream or milk affords, and with those inorganic elements in which the cereals are singularly deficient,[4] one can prepare an excellent food mixture. This is precisely what is accomplished, in the usual order of culinary events, when our breadstuffs are cooked and served with milk, meats, eggs and green vegetables. There appears to be no reason for according to barley anything but a welcome on its return to the fold of human foods. Though it is inferior to wheat and rye from the technical standpoint of the baker of the loaf, barley is acceptable to the physiologist even without its conversion into "liquid bread," the catchword so often cited to justify the use of beer.

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[1] Why Wheat? editorial, The Journal A. M. A., Sept. 1, 1917, p. 732.

HOW MANY MEALS A DAY?

Modern investigations of metabolism have demonstrated that the transformation of energy is determined by the needs of the body. Although it has little power to adjust its energy metabolism to the energy value of its food supply, the latter nevertheless has an unmistakable if slight effect. Rubner designated the specific effects of the three types of food on the energy exchange as their specific dynamic action. The simplest formulation of this somewhat obscure phenomenon that has come to our attention is attributable to Sherman,[5] as follows:

> When the digestion products of carbohydrate or fat are carried by the blood to the tissues, the energy metabolism (rate of oxidation) rises simply because of the increased concentration of oxidizable material; but some of the products of the digestion and intermediary metabolism of protein increase metabolism not only to a greater extent, but also in a somewhat different manner, since they seem to act as stimuli rather than merely as fuel. On an ordinary mixed diet, however, this apparent loss of energy due to the eating of protein is not a very large factor in the total metabolism, since the total specific dynamic action makes the metabolism of energy for the day only about one tenth higher on a full maintenance ration than when no food is eaten.

Not all meals are characterized by a large increment of heat production attributable to food per se. Soderstrom, Barr and Du Bois[6] have demonstrated, in experiments conducted under the auspices of the Russell Sage Institute of Pathology, that the rise in metabolism following a small breakfast yielding about 225 calories is small and transient in character. This has raised the question — economic more than physiologic in significance—whether it may be advantageous to divide the daily food intake into five or six small meals instead of two or three larger ones as is now usually the custom. The answer has been given by the investigators just referred to. The frequent meals, just supplying the energy as it is required, would, they admit, diminish the specific dynamic action and result in a saving equivalent to, perhaps, 5 or 10 per cent. of the basal metabolism, or about 200 calories a day. Practically, it would be of little importance, since some of the specific dynamic action of the food is utilized in the increased metabolism of work. To this may be added the suggestion of a waste of time in taking frequent meals and the tendency to overeat.

CHANGING STANDARDS AND MEDICAL PROGRESS

We cannot forbear quoting the following comment from a recent scientific contribution to the statistics of infancy:

> The medical profession is very reluctant to adopt new standards, but having been once convinced as to their correctness, they are just as loath to discard them. The result is that certain standards such as weights and measures, for example, are copied by one writer after another for years without any one, or at least very few, taking the trouble to verify their correctness. Standards which are correct in one country are often quite incorrect in another country, under different conditions.[7]

It would not be a difficult task to select illustrative instances to which this criticism is appropriately applicable. They include our inherited prejudices as well as our accumulated ignorance. In this category belong the assertions about drugs at length abandoned in view of their demonstrated inertness; the transmitted refinements of prescription which distinguish between white and dark meats or class all cheese indiscriminately with the indigestible substances; the exaggerated notions as to the quantity of protein required "for health and strength," and the unfortunate underestimate of the energy requirement of growing boys and girls. The paper from which the preceding animadversion is quoted presented a few specific instances relating to the nutrition and growth of newborn infants and of several hundred cases at the University of Minnesota Hospital. Thus the classic German computations of the energy requirements of infants are given as from 100 to 110 calories per kilogram of body weight. The Minnesota data show that all of the infants at a very early age who made good gains and left the hospital weighing more than the birth weight made their gain on much less than the quantity cited. It is apparent, Ramsey and Alley say in confirmation of Morse and Talbot[8] and others, that infants, at least during the first ten days, in order to gain reasonably in weight do not require anywhere near 100 calories per kilogram of body weight, that the energy quotient varies in the individual cases from 43 to 75, and that when new-born infants during the first ten days receive 100 calories per kilogram they are usually overfed. This statement does not apply, of course, to the needs of the prematurely born infant. Again, although the number of stools of infants during the first weeks of life is variously estimated by different writers at from two to six a day, the Minnesota pediatricians observed an average of less than two a day. They remark that overfed infants, that is those receiving an approach to 100 calories per kilogram of body weight, were the only ones in which the stools were frequent and exceeded an average of two in twenty-four hours. Such are the contrasts of fact and fancy.

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[2] Corn in the War Time Dietary, editorial, The Journal A. M. A., June 15, 1918, p. 1865.

[3] Steenbock, H.; Kent, Hazel E., and Gross, E. G.: The Dietary Qualities of Barley, Jour. Biol. Chem., 1918, 35, 61.

[4] Inorganic Elements in Nutrition, editorial, The Journal A. M. A., Aug. 24, 1918, p. 660.

[5] Sherman, H. C.: Chemistry of Food and Nutrition, New York, 1918, p. 190.

[6] Soderstrom, G. F.; Barr, D. P., and Du Bois, E. F.: Clinical Calorimetry, Paper 26, The Effect of a Small Breakfast on Heat Production, Arch. Int. Med., May, 1918, p. 613.

[7] Ramsey, W. R., and Alley, A. G.: Observations on the Nutrition and Growth of New-Born Infants: An Analysis of Three Hundred Clinical Charts, Am. Jour. Dis. Child., June, 1918, p. 408.

THE CASEIN OF HUMAN MILK

If human milk is to be the prototype of the ideal food mixture for the growing child, it is essential to learn as many details as possible regarding it. For obvious reasons, most of our accurate information regarding milk has been obtained from the secretion of the mammary glands of the cow. Despite the years already devoted to the study of the chemistry of cow's milk, much remains to be learned. Some of the recent discoveries, notably those regarding the phosphatids, the unsuspected proteins and the significant vitamins, bear witness to the possibilities of intensive investigation in this field.[9] At the Laboratories of the Boston Floating Hospital, Bosworth and Giblin[10] have completed a very thorough investigation of the casein of human milk, which is perhaps its most significant protein—at any rate, so far as the much discussed curdling of the milk is concerned. They found the human product to resemble the casein from cows' and goats' milk in every detail examined. It has the same proximate composition, the same degree of valence, and gives the same series of salts with bases. Like that of the casein from the other sources cited, the human protein has a molecular weight of nearly 9,000. It is acted on by the curdling enzyme rennin in the same manner, the resulting paracasein or curd protein being similar to that yielded by cows' milk. The demonstration of such fundamental resemblances, even if they may not be identities, will serve to dispel some of the prevalent misconceptions regarding unproved unique chemical features of human milk.

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[8] Morse and Talbot: Diseases of New-Born and Infant Feeding, 1915.

[9] The Composition of Milk Fats, editorial, The Journal A. M. A., Nov. 3, 1917, p. 1529; Purins in Cow's Milk, March 16, 1918, p. 784.

[10] Bosworth, A. W., and Giblin, Louise A.: The Casein of Human Milk, Jour. Biol. Chem., 1918, **35**, 115.

Women's Employment.—As early as 1867, women were grinding drills, tending light machines, and performing filing operations in a machine shop in New Bedford, Mass.

Medical Mobilization and the War

Missing

A casual report states that Capt. Dana C. Schmahl, M. C., U. S Army, St. Paul, is missing after action in France.

Red Cross Physicians in Manchuria

Four physicians of the American Red Cross have gone to Vladivostok to the Manchurian front to investigate refugee and civilian relief conditions. The Red Cross unit has taken over the surgical department of the Harbin Military Hospital, and will also establish an evacuation hospital near the front.

Prisoners in Germany

Lieut. Harold Abbott Goodrich, M. C., U. S. Army, Webster Groves, Mo., is reported to be a prisoner in the Göttingen Lazarett.——Capt. Howard F. Kane, M. C., U. S. Army, Machias, Me., has been in a German prison camp at Rastadt since May 27.——Lieut. Clarence C. Del Marcelle, M. C., U. S. Army, Green Bay, Wis., was recaptured by Americans after having been held captive by the Germans for four hours in a shell hole.

New Red Cross Medical Head

Col. Frederick T. Murphy, M. C., U. S. Army, St. Louis, who went to France a year ago in command of the Washington University Unit, established Base Hospital No. 21, and who was also in charge of Base Hospital No. 12 at the British front and was transferred to the general headquarters, A. E. F., has been relieved from that duty, and, it is reported, has been placed in charge of medical and surgical work under the American Red Cross.

Legal Suggestions for Soldiers and Sailors

The Boston Legal Aid Society has issued a "Handbook of Legal Suggestions for Soldiers and Sailors and Their Dependents," which sets forth in simple language the provisions which men entering the service and their families should know. A chapter on compensation for injuries has been added to this handbook, which may be obtained on application to Reginald Heber Smith, Chief Counsel, Boston Legal Aid Society, 39 Court Street.

Red Cross Donation to Canada

The War Council of the American Red Cross has contributed without restrictions $500,000 for the relief of Canadian soldiers at the front, and with the gift sent a copy of the following preamble adopted by the War Council:

> Whereas, The American people profoundly and gratefully recognize the devotion of the Canadian people, and the armed forces of Canada in the great war and are deeply appreciative of the spirit of heroism and self-sacrifice with which so many Americans have fought and died as members of the Canadian forces during the past years, and it is highly appropriate that the American Red Cross should extend to the Canadian soldiers a measure of assistance toward their relief and comfort, and
>
> Whereas, Such tribute cannot be translated more serviceably or appropriately than by a gift through the Canadian Red Cross, and it is the desire of the American Red Cross to afford substantial recognition of the sentiment of brotherhood and sympathy which pervades this country in this present crisis of human affairs.

Wounded

It is reported that Lieut. James Farish Robertson, M. C., U. S. Army, Wilmington, N. C., was wounded in action, recently.——Lieut. Frederick C. Smith, M. C., U. S. Army, Halifax, Pa., is reported to have been seriously wounded.——Lieut. Thomas B. Scott, M. C., U. S. Army, Butte, Mont., is reported to have been wounded, August 17, and taken to a hospital in Paris.——Lieut. Daniel William Jeffries, M. C., U. S. Army, Marietta, Ill., is reported to have been seriously wounded.——Dr. Hugh Hildebrant, M. C., U. S. Army, Washington, Ohio, had his right ear torn off and his hearing on that side entirely destroyed by a shell explosion, May 19.——Major Howard W. Beal, M. C., U. S. Army, Worcester, Mass., who for more than a year was in charge of the American Women's Hospital at Paignton, North Devon, England, and later organized a hospital unit in Worcester, is reported to have been severely wounded.

Awards for Bravery

Dr. Harry Burns, Middlebury, Vt., on duty with the 30th Infantry, has been awarded the Croix de Guerre.——Lieut. Morris B. Simpson, Council Grove, Kan., serving with the British Expeditionary Forces, has been awarded the Croix de Guerre.——The Italian government has awarded the "War Cross of Merit" to twenty-seven American Red Cross ambulance drivers.——Ten members of the Sanitary Service Unit No. 544, attached to the French Army, have been awarded the Croix de Guerre.——The distinguished service medal has been given to Lieut. Charles W. Myers, M. C., U. S. Army, Marysville, Pa., who on July 1, 1918, established under heavy shell fire an advance medical station for the treatment of men wounded in the first waves of the assault.——Lieut. Erling W. Hansen, M. C., U. S. Army, Minneapolis, has been recommended for promotion to captaincy and has received special commendation in dispatches for "exemplary courage and devotion to duty."——The Distinguished Service Cross has been awarded to Lieut. Lemuel C. Shepherd, M. C., U. S. Army, Norfolk, who "on June 3, near the Lucy-Torcy roads" declined medical treatment after being wounded, and continued courageously to lead his men.——Lieut. J. Elma Croop, M. C., U. S. Army, Erie, Pa., has been given the British Military Cross for gallantry under fire.——Privates Jefferson Holt and Charles Raffington, M. C., U. S. Army, on duty with the engineers, have been awarded the Distinguished Service Cross, because "during the day and night of June 2 and 3, 1918, they exposed themselves to severe and continuous fire beyond call of duty in order to bring aid to the wounded engineers and marines."

Bravery in the Medical Department

American Official Communiqué No. 106, dated August 28, announces among other awards of the distinguished service cross the following to the members of the Medical Department:

PVT. FRED GUNN, Medical Department, Infantry. "At the battle of Cantigny, France, May 28-31, 1918, he repeatedly on his own initiative left the security of the trench to administer first aid under fire and in full view of the enemy snipers and machine gunners. His brave conduct was a noble example and his ministrations relieved suffering and saved lives."

PVT. JOHN B. WHEN, Medical Department, Infantry. "For three nights at Cantigny, France, May 28-31, 1918, he worked unceasingly under fire, bringing the wounded to safety and ministering to them on his own initiative. He repeatedly left shelter to help wounded men."

PVT. FRANK J. REYNOLDS, Medical Department, Infantry. "During the fight at Cantigny, France, May 28-30, 1918, while acting as a stretcher bearer, he constantly and fearlessly exposed himself to artillery and machine-gun fire to succor the wounded, frequently on his own initiative, when he might have remained in security himself."

FIRST LIEUT. THOMAS M. BARBER, Medical Reserve Corps, Infantry. "On May 28-30, 1918, near Cantigny, France, he repeatedly demonstrated heroic self-sacrifice by caring for wounded under enemy fire and with apparent contempt for his own safety. When his aid station had been destroyed by shell fire he promptly moved into a shell hole near by and continued his faithful work."

Result of Survey of Medical Society of District of Columbia

A recent survey by questionnaire of 562 members of the Medical Society of the District of Columbia resulted in the following classification with respect to obligation for military service:

	Available for service, in the following order:	
0	Failed to answer questionnaire	24
0a	Insufficient data on questionnaire	1
1	Commissioned but not yet assigned to duty	14
2	Commissioned but discharged at own request; willing to reenter service	2
3	Commission awarded but not yet accepted	3
4	Application for commission pending	12
5	Independent means	4
6	No dependents	21
7	Dependents, minor degree. (Officer's salary sufficient or sufficient when supplemented by private means, or dependents all adults)	61
8	Dependents, major degree	127
	Total available	269
	Not available because of:	
	Age	90
	Sex	30
	Foreign citizen	3
	Physical disability (Rejected, 17; discharged, 4)	36
	In active military service	120
	Engaged in Red Cross or similar service	4
	Total not available	293

EXPERIENCE OF THE NEW ARMY MEDICAL OFFICER

The new Selective Service Law is being received with various emotions by physicians under 46 years of age who are physically qualified for service in the Army. Some are rejoicing that a decision will be made for them; others are fearing that they may be "called." Many have been hesitating about volunteering for the Medical Corps, fearing that they would not like the work. As a matter of fact, few men have regretted entering the service. Since the United States entered the war THE JOURNAL has received thousands of letters from men in service, and nine out of ten have expressed themselves as being glad they made the choice. To encourage those who fear they might not like the work, we quote below from two personal letters received in the same mail by two members of the editorial staff of THE JOURNAL. The first is from a physician who has been in active practice between fifteen and twenty years, devoting himself more or less to surgery, and who, it will be noticed, was at once ordered into practical work in a base hospital. The second is from a physician who has been in practice between twenty and twenty-five years, and has held important teaching and hospital positions in his specialty. At his own request he was ordered to an officers' training camp—Fort Oglethorpe. Both of these men have been successful in practice, undoubtedly averaging over $10,000 a year.

My Dear Doctor:—Just a page or two from a six weeks' veteran in the service who has gotten his second wind on September morn and in the first leisure moment thought you might be agreeable to have a break in your morning grist of mail.

Speaking of leisure, it does seem strange that the gamut has been run of vaccinations, inoculation, statements of pedigree, physical examinations, etc., etc., and to learn that the government is satisfied that it has one listed from A to Z. However, it is a fine system and it is a personal satisfaction to learn of one's physical inventory.

As far as work is concerned, there is plenty. My assignment to the operating room has given me an abundance of operative work. In my room we have averaged ten operations a day during the month of August. They run along a somewhat uniform line, consisting of hernias, appendixes, cysts, neoplastic growths and suppurative processes; likewise traumatisms and fractures. The surgical department did 342 herniotomies with but three minor infections in August. A good record considering the intense heat.

The men here are a splendid lot of fellows and are typical of what the profession is doing in the war and the sacrifices they are making. It is really marvelous what these men are doing and what they are denying themselves, and the spirit in which they are doing it. It is surely a matter of organizational pride.

The officer on duty in the line has his hour-and-a-half a day relief from duty. The medical officer is on duty twenty-four hours and especially in surgery he must remain within call. If he wants to go to a "movie" he has to look up a fellow officer who will stay in and protect his service. And then if you go wrong you are responsible for the acts of your relief. Neither does it matter if you are called during the night and miss several hours' sleep, you have no opportunity for a late "snooze" in the morning. To see men assume such tasks and to know that in private life they had not been accustomed to put up with such confinement and restrictions intensifies one's admiration.

There is but one criticism and possibly it is only a minor one and only of passing moment: During that hot spell a general order of the C. O. of the base hospital made it obligatory for medical officers to wear their coats in the hospital and also in the camp. Line officers and privates were going around in their shirts, but the base hospital officers were sweltering in their coats to maintain their professional (?) dignity. It created considerable grumbling, but we wore them. It would have been a consideration for comfort to have been permitted to go without them, but evidently others thought it wise not to exhibit such consideration for personal comfort.

When THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION arrives there is an eager scramble for copies, and interest is first directed to "Army News" to see who received orders or who has come in. If the War Department would permit it, could you not publish the location of the evacuation and field officers and base hospitals overseas? I frequently hear: "Where is Base 26, 77, 34 located in France and who is the C. O.?" The men in the United States seem to wonder where their comrades of camp life are located "Over There." I am sure all the men would appreciate such information. (Not permitted. Ed.).

——————— Captain, Base Hospital.

My Dear Friend:—Just a line to let you know how things are going. This is a real place, mightily glad they sent me here, the training is excellent and just the thing for the doctors; they make an old doctor young, and a young doctor better. We are carefully watched in our training and I feel a man can get what he works for. They say I have adapted myself well. This I do know: I am pleased with the work and it is mighty interesting. The instructors are men of high ability and if one does not profit by this training it is his fault, and not that of the staff of instructors. The teaching staff are in earnest and give the men the best they have, and it has been a big sacrifice for them. The military training and discipline is what we all need and it is going to be a great help to me if I ever return to private practice after this war. When a man finishes his internship in a hospital, he ought to have six months' military training as we get it here. I hope my sons can get it.

———————, Captain, M. C.
Fort Oglethorpe, Ga.

COMMISSIONS ACCEPTED, U. S. NAVAL RESERVE FORCE

Previous lists published in The Journal, June 29, July 13, 20 and 27, August 3, 10 and 31.

CALIFORNIA

Long Beach—Sweet, R. B.
Los Angeles—Werner, E. S.
San Francisco—Jenkins, L. R.

DISTRICT OF COLUMBIA

Washington—Hines, C. G.
Horrigan, D. E.

FLORIDA

Tampa—Hodgson, G. H.

ILLINOIS

Chicago—Howe, H. W.
Knapp, J. L.
Sullivan, T. J.

MARYLAND

Baltimore—Hundley, F. S.

MASSACHUSETTS

Boston—Holmes, F. G.

MICHIGAN

Jackson—Peterson, E. S.

MISSOURI

St. Louis—Johnson, E. H.

NEW JERSEY

Trenton—Kuhl, P. E.

NEY YORK

New York—Klapper, H.

PENNSYLVANIA

Philadelphia—Newcomer, H. S.
Vaughn, J. W.
Pittsburgh—Jorden, H. D.
Scranton—Sullivan, J. J., Jr.

TEXAS

Abilene—Hollis, S. W.

VIRGINIA

Suffolk—White, L. W.

COMMISSIONS ACCEPTED, MEDICAL CORPS, U. S. ARMY

Previous lists published in The Journal, June 1, 22 and 29, July 13, 20 and 27, August 3, 10, 17, 24 and 31.

ALABAMA

Birmingham—Cocke, N. P.
Jackson—Bedsole, J. G.
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To Camp Sevier, S. C., base hospital, from Fort Oglethorpe, Capt. M. T. GAINES, Mobile.

To Camp Wadsworth, S. C., from Canal Zone, Capt. I. MICHLIN, Birmingham.

To Danville, N. Y., from Walter Reed General Hospital, Major E. D. BONDURANT, Mobile.

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To Camp Lewis, Wash., base hospital, from duty as a contract surgeon, Capt. T. ADDIS, San Francisco.

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To Canal Zone, Major R. L. I. SMITH, Pomona.

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To Fort Oglethorpe for instruction, Capt. J. G. HAM, San Bernardino; Lieut. W. J. McKENNA, Los Angeles.

To Fort Riley for instruction, Lieuts. W. P. MARTIN, Fresno; A. E. DICKINSON, San Jose.

To San Francisco, Calif., Letterman General Hospital, *from* Camp Fremont, Capt. W. C. BAKER, San Mateo; from Fort Winfield Scott, Major H. C. MOFFITT, San Francisco.

To report to the commanding general, Western Department, Capts. G. E. FULLER, Chula Vista; C. M. C. WALTERS, Los Angeles.

To his home, from Western Department, Major E. L. SWIFT, Fort McDowell.

Honorably discharged, Capt. G. M. DUNNE, San Francisco. On account of physical disability existing prior to entrance into the service, Lieut. C. F. CURTIS, Hollywood.

Colorado

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To Camp Gordon, Ga., as tuberculosis examiner, from Fort Thomas, Lieut. O. A. GRANTHAM, Johnstown.

To Camp Perry, Ohio, from Fort Logan, Lieut. H. S. SHAFER, Denver.

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To Fort Oglethorpe for instruction, Lieut. C. F. X. LEIBELL, Washington.

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To Camp Dix, N. J., as orthopedic surgeon, from Boston, Lieut. S. L. STEVENS, Dalton City.

To Camp Dodge, Iowa, Capts. J. L. MANNING, R. A. SMITH, Chicago. Base hospital, Capt. D. L. SCHRAM, Chicago. Evacuation hospital, from Fort Riley, Lieuts. V. J. NEALE, Chicago; O. R. SAUL, Dana.

To Camp Grant, Ill., base hospital, Lieut. H. CULVER, Chicago; from Camp Alfred Vail, Lieut. J. T. O'CONNELL, Jr., Chicago. *To examine the command* for nervous and mental diseases, Capt. J. F. WENN, Chicago.

To Camp Hancock, Ga., Lieut. H. H. SEYL, Chicago.

To Camp Meade, Md., base hospital, Capt. O. A. R. DONNELLY, Lieut. E. J. DEVINE, Chicago.

To Camp Pike, Ark., base hospital, from Fort Leavenworth, Capt. C. CULBERTSON, Chicago.

To Camp Upton, N. Y., base hospital, Lieut. V. M. CORMAN, Rushville.

To Camp Wadsworth, S. C., from Blacksburg, Va., Lieut. J. V. DILLMAN, Louisville; from Camp Jackson, Lieut. A. J. FIRTIK, Chicago; from Camp Kearney, Lieut. R. C. TENEROWICZ, Chicago; from Camp MacArthur, Lieut. C. K. STULIK, Chicago; from Camp Upton, Lieut. J. SLIVKA, Chicago; from Fort Oglethorpe, Lieuts. S. CZAJOWSKI, Chicago; F. J. CHMELIK, Joliet; from Morrison, Va., Lieut. F. L. FORTELKA, Chicago.

To Camp Zachary Taylor, Ky., as orthopedic surgeon, from Boston, Lieut. G. E. LYON, Decatur.

To Fort Des Moines, Iowa, for consultation, and on completion *to report to the Surgeon-General* for further orders, from Fort Leavenworth, Major H. M. ADLER, Chicago.

To Fort Oglethorpe, from Camp Beauregard, Lieut. H. BARANCIK, South Chicago; from Camp Custer, Lieut. J. R. GERSTLEY, Chicago. For instruction, Capt. J. V. WHITE, Auburn; H. WOOD, Batchtown, L. B. CAVINS, J. K. P. HAWKS, Bloomington; S. FOMON, H. B. THOMAS, J. M. HUBER, Chicago; C. W. YECK, Pawnee; G. D. DRENNAN, Woodhull; Lieuts. S. P. BLIM, I. H. CHILCOTT, J. P. GRAF, M. B. JELLIFFE, S. E. LYNCH, Chicago; L. P. PETERS, Clayton; R. H. SMITH, Eureka; W. F. ALLISON, Paris; H. W. ACKERMANN, Rockford.

To Fort Riley, for instruction, from duty as an enlisted man, Lieut. H. H. BEIL, Chicago.

To Fort Sam Houston, Texas, Lieuts. J. BUCKLEY, L. C. R. Lovellette, Chicago; W. E. G. MAYES, Dawson.

To Lakewood, N. J., Lieuts. G. H. ANDERSON, E. F. MEILKE, Chicago.

To Millington, Tenn., Park Field, from Camp Wheeler, Lieut. L. L. TURNER, Chicago.

To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieut. A. E. CASSERLY, Chicago.

To report to the commanding general, Central Department, Lieuts. F. J. QUIRK, Chicago; R. A. HAMILTON, Hillsboro; J. G. YOUNG, Warsaw.

To Sacramento, Calif., Mather Field, from Arcadia, Capt. W. E. MERCER, Liberty.

To Walter Reed General Hospital, D. C., from Fort Sam Houston, Major E. W. FELL, Elgin.

To Washington, D. C., Surgeon-General's Office, from Camp Custer, Major C. E. KAHLKE, Chicago.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. A. F. STEWART, Oneida.

Indiana

To Camp Crane, Pa., from Camp Zachary Taylor, Capt. P. B. COBLE. Indianapolis.

To Camp Dodge, Iowa, Lieut. H. C. METCALF, Andersonville.

To Camp Lee, Pa., from Fort Oglethorpe, Lieut. E. VAN REED, Lafayette.

To Camp Upton, N. Y., as orthopedic surgeon; from Boston, Capt. W. C. MOSS. Bunker Hill.

To Camp Wheeler, Ga., from Camp Lee, Lieut. J. L. HEDDING, Bluffton.

To Fort Oglethorpe, from Camp Custer. Lieut. C. H. MEAD, Bluffton; from Colonia, N. J., Capt. L. P. DRAYER, Fort Wayne. For instruction, Capts. F. HODGES, Indianapolis; M. J. COOMES, Versailles; Lieuts. R. S. KEMP, Kentland; H. G. WEISS, Rockport; R. E. SWOPE, Rockville.

To Fort Sam Houston, Texas, Lieut. H. H. DEEN, Leavenworth.

To Hoboken, N. J., base hospital, from Fort Slocum, Major H. M. HOSMER, Gary.

To New Haven, Conn., Capt. B. B. PETTIJOHN, Indianapolis.

To Rochester, Minn., for instruction, and on completion *to Camp Grant, Ill.*, base hospital, from Camp Grant, Lieut. B. E. LEMMON, Greencastle.

To Rockefeller Institute for instruction in laboratory work, and on completion *to New Haven, Conn.*, Yale Army Laboratory School, from Fort Oglethorpe, Capt. J. P. SEALE, Fairmount.

To Walter Reed General Hospital, D. C., from Camp Meade, Lieut. L. S. BOLLING, Attica.

To report to the commanding general, Central Department, Capt. A. H. CAFFEE, Terre Haute.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. C. L. SOUDER, Columbia City.

Iowa

To Arcadia, Calif., as post surgeon, from Camp Dix, Major C. H. COGSWELL, Cedar Rapids.

To Camp Dodge, Iowa, Capts. J. W. WOODBRIDGE, Cylinder; F. R. SPARKS, Waverly; Lieuts. J. T. McCONNAUGHEY, Winfield; L. W. PENCE, State Center. Base hospital, Capt. J. D. GEISSINGER, Spirit Lake.

To Camp McClellan, Ala., from Eastern Department, Capt. S. A. O'BRIEN, Mason City.

To Fort Oglethorpe for instruction, Lieuts. L. K. MEREDITH, Des Moines, C. O. YENERICH, Rockford; from duty as an enlisted man, Lieut. E. C. AMBROSE, Cranby.

To Fort Riley for instruction, Lieuts. W. G. WALKER, Corydon; W. W. DAUT, Muscatine.

To Mineola, N. Y., from the Surgeon-General's Office, Lieut.-Col. E. R. LEWIS, Dubuque.

To Washington, D. C., from Camp Upton, Capt. H. G. VAUGHAN, Oak Park.

Honorably discharged on account of physical disability existing prior to entrance into the service, Capt. A. C. HANSEN, Chester.

Kansas

To Camp Dodge, Iowa, base hospital, Lieut. H. A. ALEXANDER, Topeka.

To Camp MacArthur, Texas, Capts. O. J. CORBETT, Emporia; O. M. OWENSBY, Pittsburg; Lieuts. D. L. HEIDRICK, Welda.

To Camp Pike, Ark., base hospital, Capt. J A McLAUGHLIN, Greenburg.

To Fort Oglethorpe for instruction, Lieuts. C. O. DAVISON, Garden City; G. K. HAUGHEY, Wakeeney.

To Fort Riley for instruction, Capt. P. W. ROBINSON, Osawatomie; Lieuts. H. M. MAKINS, Abilene; J. W. WEST, Narka.

To Jackson Barracks, La, Capt. E. D. ELBRIGHT, Wichita; Lieut. J. O. WILLIAMS, Emporia.

To Middletown, Pa., Lieut. J. B. EDWARDS, Garden City.

To report to the commanding general, Central Department, Capt. W. B. COE, Waterville.

The following order has been revoked: *To Camp Grant, Ill.*, from Fort Riley, Capt. C. H. KOENTZ, Onaga.

Kentucky

To Ann Arbor, Mich., for intensive training, from Camp Zachary Taylor, Lieut. E. MOORMAN, Harned.

To Camp Wadsworth, S. C., from Camp Wheeler, Capt. J. U. RIDLEY, Robards.

To Fort McPherson, Ga., Capt. E. L. BUSBY, Lexington.

To Fort Oglethorpe for instruction, Capts. L. H. KERR, J. D. TRAWICK, Louisville; G. LAWRENCE, Shelbyville; Lieuts. S. L. HENSON, Benton; J. G. CLEM, Louisville; E. A. NORTH, Newport.

To Hoboken, N. J., from Camp Meade, Lieut. W. C. KUNKLER, Louisville.

To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieut. O. BAILEY, Martha.

Louisiana

To Camp McClellan, Ala., from Camp Shelby, Lieut. W. M. LEDBETTER, Shreveport.

To Fort Oglethorpe for instruction, Lieuts. R. D. MARTINEZ, Bunkie; N. M. PALMER, Lessville; G. J. TAQUINO, New Orleans.

Maine

To Camp Dodge, Iowa, Lieut. A. H. RINGEN, Sweet Springs.

To Camp Jackson, S. C., from Camp Jackson, Lieut. H. G. McKAY, Bangor.

To Fort Oglethorpe for instruction, Lieut. C. C. HALL, Foxcroft.

To Fort Sam Houston, Texas, Lieut. F. E. LUMAN, Baring.

To Garden City, N. Y., Lieuts. R. D. WALTON, Frankfort; C. A. MACOMBER, New Sharon.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to Camp Dix, N. J.*, base hospital, from Northwestern Department, Capt. D. W. WENTWORTH, Sanford.

Maryland

To Camp Custer, Mich., base hospital, Capt. W. B. PERRY, Baltimore.

To Camp Pike, Ark., to examine the command for nervous and mental diseases, from Camp Sheridan, Capt. M. LEVY, Baltimore.

To Camp Upton, N. Y., with the board examining the command for cardiovascular diseases, from Camp Lee, Capt. A. D. ATKINSON, Baltimore.

To Camp Wadsworth, S. C., from Fort Oglethorpe, Capt. R. R. NORRIS, Crisfield.

Resignation of Lieut. W. R. JOHNSON, Baltimore, accepted.

Massachusetts

To Azalea, N. C., Lieut. W. W. WALKER, West Somerville.

To Camp Beauregard, La., as orthopedic surgeon, from Boston, Lieut. W. J. LA LIBERTE, Fall River.

To Camp Crane, Pa., from Camp Greene, Major J. C. HUBBARD, Boston; from Camp Zachary Taylor, Lieut. C. SALMON, Worcester.

To Camp Devens, Mass., base hospital, Major S. G. UNDERHILL, Lynn.

To Camp Gordon, Ga., to examine the command for nervous and mental diseases, Capt. G. A. PEIRCE, Tewksbury.

To Camp Greene, N. C., base hospital, Caot. F. X. CORR, Dorchester.

To Camp Hancock, Ga., base hospital, Lieut. D. LOWRY, Ayer.

To Camp Jackson, S.C., from Camp Wadsworth, Capt. G. D. HENDERSON, JR., Holyoke.

To Camp MacArthur, Texas, to examine the command for nervous and mental diseases, from Camp Gordon, Lieut. B. L. ASHMORE, Palmer.

To Camp McClellan, Ala., Capt. J. W. SANBORN, Lieut. J. S. McCORMACK, Boston.

To Camp Meade, Md., Lieut. W. L. WRIGHT, Boston.

To Camp Shelby, Miss., from Camp Devens, Lieut. E. J. BRAERTON, Boston.

To Camp Wadsworth, S. C., from Fort Oglethorpe, Lieut. L. W. HARRIS, Cliftondale.

To Fort Myer, Va., as orthopedic surgeon, from Boston, Lieut. H. W. ELLAM, Gardner.

To Fort Oglethorpe, evacuation hospital, from Boston, Lieut. J. H. SHORTELL, Boston; from Camp Upton, Major H. T. HUTCHINS,
Capts. F. K. SHAW, Concord; A. G. HURD,
TE, Rockland; H. RITTER, Springfield; Lieuts.
S. MACMILLAN, Boston; E. T. SAEGER,
YNSKI, Holyoke; D. G. PLUMB, Melrose; A.
F. CLEVERLY, Situate; from Boston, Lieuts.
KLEIN, Boston; from duty as an enlisted man,
Lynn.

To Fort Slocum, N. Y., Capt. A. C. DEDRICK, Fall River.

To Lakewood, N. J., for instruction in the cardiovascular school, Lieut. F. C. HALL, Brookline.

To Miami, Fla., gunnery school; from Garden City, Lieut. A. O. McLAUGHLIN, Haverhill.

To Mineola, N. Y., from the Surgeon-General's Office, Major W. B. LANCASTER, Boston.

To New Haven, Conn., Yale Army Laboratory School, for instruction, from Camp Lee, Capt. F. H. HIBBEN, Brookline.

To Rockefeller Institute for instruction, and on completion *to Bellevue Hospital, N. Y.*, for further instruction, and on completion *to Camp Wheeler, Ga.*, Lieut. J. H. COOK, Quincy.

To Walter Reed General Hospital, D. C., Lieut. J. B. A. JOHNSON, Lowell.

To report to the commanding general, Northeastern Department, Capt. G. S. ALLEN, Lawrence.

The following orders have been revoked: *To Camp Dix, N. J.*, Lieut. W. F. BRADY, Holyoke. *To Camp Lee, Va., to examine the command* for nervous and mental diseases, from Camp Meade, Lieut. M. W. PECK, Marblehead.

Michigan

To Camp Crane, Pa., Lieut. E. V. MAYER, Detroit; from Camp Zachary Taylor, Lieut. T. E. HACKETT, Jackson.

To Camp Devens, Mass,, as orthopedic surgeon, from Boston, Lieut. H. F. OHRT, Detroit.

To Camp Dodge, Iowa, Capt. J. C. CLIPPERT, Lieut. R. R. GOLDSTONE, Detroit.

To Camp Jackson, S. C., as orthopedic surgeon, from Fort Oglethorpe, Lieut. R. H. RUEDEMANN, Ann Arbor.

To Camp Perry, Ohio, Capts. G. J. SCHALLER, Detroit; H. W. KNAPP, Gaylord.

To Camp Pike, Ark., as orthopedic surgeon, from Fort Oglethorpe, Lieut. E. D. KING, Detroit; from Syracuse, Lieut. H. R. LEIBINGER, Detroit.

To Fort Oglethorpe, evacuation hospital, *from* Camp Zachary Taylor, Capt. J. A. ELLIOTT, Battle Creek. For instruction, Lieuts. P. R. URMSTON, Bay City; G. R. YOUNG, L. B. COWEN, D. WEINGARDEN, Detroit; W. C. SWARTOUT, Muskegon; H. E. WHITNEY, Ostego.

To Garden City, N. Y., Capt. A. E. HENWOOD, Kalamazoo; Lieuts. W. H. ROBINSON, Detroit; S. R. EDWARDS, Grand Rapids.

To Mount Clemens, Mich., Selfridge Field, Capt. C. D. MUNRO, Jackson; Lieuts. R. L. CLARK, Detroit; J. J. McCANN, Ionia; H. A. MILLER, Lansing.

To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieut. C. M. SPENCER, Freesoil.

To New York, Neurological Institute, for instruction, Capt. R. C. STONE, Battle Creek.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to proper station,* from Camp A. A. Humphreys, Capt. C. L. BARBER, Lansing.

The following order has been revoked: *To Camp Wadsworth, S. C.*, from Camp MacArthur, Capt. J. P. BLAND, Adrian.

Minnesota

To Azalea, N. C., from Fort Thomas, Lieut. G. BRELSFORD, State Sanitarium.

To Camp Custer, Mich., base hospital, Capt. E. H. HAMMES, St. Paul.

To Camp Dodge, Iowa, Lieuts. M. R. SATHE, Jackson; K. C. WOLD, St. Paul.

To Camp Grant, Ill., as orthopedic surgeon, from Fort Oglethorpe, Lieut. H. E. HULLSICK, St. Paul.

To Camp MacArthur, Texas, to examine the command for nervous and mental diseases, Lieut. F. W. WHITMORE, St. Paul.

To Fort Oglethorpe, evacuation hospital from Camp Sevier, Capt. B. A. KAMP, Albert Lea. *For instruction, Major H. M.* MORTON, Lieuts. H. N. MELECK, Minneapolis; H. N. KLEIN, St. Paul; B. RAVN, Windom.

To report to the governor of Minnesota, as Medical Aide, Capt. A. MACLAREN, St. Paul.

To Washington, D. C., from Army Medical School, Lieut. P. BLANCO, Rochester.

Honorably discharged, Major E. S. GEIST, Capt. R. J. SEWALL, Minneapolis; Lieut. J. OHAGE, JR., St. Paul.

The following orders have been revoked: *To Camp Crane, Pa.*, from Camp Dodge, Capt. C. E. CONNOR, Minneapolis. *To Camp Wadsworth, S. C.*, from Camp Dodge, Lieut. *M. SEHAM, Minneapolis.*

Mississippi

To *Camp Hancock, Ga.*, Lieuts. R. PAINE, Aberdeen; G. T. WARREN, Brockhaven.

To Camp MacArthur, Texas, Capt. W. N. BLOUNT, Collins.

To Fort Oglethorpe for instruction, Lieut. E. A. GRICE, Crowder; from duty as an enlisted man, Lieut. T. E. PHLLIPS, Whynot.

To Fort Sam Houston, Texas, Lieut. E. L. RAWLES, Sherard.

To Fort Sheridan, Ill., base hospital, from Fort Sill, Capt. R. M. STEPHENSON, Lexington.

To Jackson Barracks, La., Capt. B. J. PLUNKETT, Jackson.

Resignation of Lieut. J. S. ADAMS, DeKalb, accepted.

Missouri

To Camp Dix, N. J., base hospital, Lieut. E. KOWALSKY, St. Louis.

To Camp Dodge, Iowa, Capt. E. POWERS, Carthage.

To Camp Gordon, Ga., as tuberculosis examiner, from Fort Thomas, Lieut. M. O. COOMBS, Joplin.

To Camp Logan, Texas, as tuberculosis examiner, from Camp Pike, Lieut. R. SHEETZ, Orrick, from Camp Travis, Capt. A. G. WAINRIGHT, St. Louis.

To Camp MacArthur, Texas, Capt. D. S. WERTH, Kirkwood; Lieuts. A. D. KNABB, Springfield; J. C. McINTIRE, St. Louis

To Camp Pike, Ark., from Fort Riley, Lieut. T. P. GRONOWAY, Bevier. Base hospital, Capt. T. E. WYATT, Kansas City.

To Camp Sherman, Ohio, as orthopedic surgeon, from Fort Oglethorpe, Lieut. K. C. PEACOCK, St. Louis.

To Camp Wadsworth, S. C., from Camp Dodge, Capt. J. M. EPSTEIN, St. Louis.

To Fort Oglethorpe for instruction, Capt. R. S. TILLES, *St. Louis;* Lieuts. D. J. ROYER, Joplin; F. L. DAVIS, St. Louis.

To Fort Riley for instruction, Capts. G. B. MITCHELL, Branson; R. W. SMART, Crane; J. J. O'KEEFE, H. B. MILLER, St. Louis; Lieuts. J. D. FERGUSON, Ava; J. R. PINION, Caruthersville; C. P. PICKETT, Mercer; W. F. MEYER, F. S. SETTLE, St. Louis; D. A. SEIBERT, Washington.

To Fort Sam Houston, Texas, Lieuts. N. ZOGLIN, Kansas City; H. H. HENDRICKS, St. Louis.

To Jackson Barracks, La., Capt. R. M. JAMES, Joplin.

To Millington, Tenn., Park Field, from Fort Oglethorpe, *Lieut.* G. C. BALCK, St. Louis.

To New Haven, Conn., Yale Army Laboratory School, for instruction, Capt. E. H. COON, Grand Pass.

To report to the commanding general, Central Department, Capts. E. L. MORGAN, Graham; J. F. DODSON, Kirksville; D. F. MANNING, Marshall.

Discharged, Lieut. E. A. HOEFER, Merceline.

The following order has been revoked: *To Fort Riley* for instruction, Capt. H. BRYAN, Carthage.

Montana

To Camp Meade, Md., base hospital, *from* Camp Lee, *Lieut.* W. G. DYE, Great Falls.

To Fort Riley for instruction, *Lieut.* M. HOPKINS, Gildford.

Nebraska

To Camp Bowie, Texas, base hospital, from Boston, Lieut. C. W. WAY, Wahoo.

To Camp Dodge, Iowa, Capt. G. H. GILMORE, Murray; Lieut. E. V. NEUMAN, Wausa.

To Camp MacArthur, Texas, Capt. L. C. ADCOCK, Omaha.

To Camp Wadsworth, S. C., from Fort Riley, Lieut. J. P. SWOBODA, Omaha.

To Camp Zachary Taylor, Ky., base hospital, Lieut. R. J. STEARNS, Omaha.

To Fort Oglethorpe for instruction, Capt. J. J. SNIPES, Lincoln.

To Fort Riley for instruction, Capts. E. I. WHITEHEAD, *Holdrege;* R. M. MORRILL, Lincoln; Lieut. J. E. INGRAM, Harvard.

To Fort Sam Houston, Texas, Lieuts. W. S. BARTHOLOMEW, Marion; J. C. STORKAN, Wilber.

The following order has been revoked: *To Fort Oglethorpe* for instruction, Lieut. R. L. SMITH, Lincoln.

Nevada

To report to the commanding general, Western Department, for assignment to duty, Lieut. W. B. MORROW, Stewart.

New Hampshire

To Fort Oglethorpe for instruction, from Boston, Major R. J. GRAVES, Concord.

New Jersey

To Camp Cody, N. M., base hospital, from Boston, Lieut. W. W. SCHMIDT, Cliffside.

To Camp Dodge, Iowa, from Fort Riley, Lieut. J. L. WILSON, Jersey City.

To Camp Logan, Texas, as tuberculosis examiner, from Camp Travis, Lieut. C. ENGLANDER, Cedar Grove.

To Camp Meade, Md., as tuberculosis examiner, from Camp Sheridan, Lieut. S. BARISHAW, Jersey City.

To Camp Zachary Taylor, Ky., as orthopedic surgeon, from Fort Oglethorpe, Lieut. T. L. CALDRONEY, Paterson.

To Fort Oglethorpe for instruction, Capt. F. BROUWER, Toms River; Lieuts. F. N. BUNNELL, Barnegat; M. M. MACLAIN, Belvidere; J. NYDES, Hilton; J. J. BRUNE, J. W. HURFF, O. A. MOCKRIDGE, Newark; H. N. GOLDING, Patterson;. from Camp Upton, Lieut. L. D. WHITNEY, Belleville.

To Fort Slocum, N. Y., Lieut. P. B. MEANS, Trenton.

To Washington, D. C., as tuberculosis examiner, from Washington Barracks, Capt. H. M. EWING, Montclair.

New Mexico

To Camp Kearney, Calif., Lieut. F. H. JOHNSON, Carrozozo.

To Fort Oglethorpe for instruction, Capt. W. M. SCOTT, Alamogordo.

To report to the commanding general, Southern Department, for assignment to duty, Capt. M. M. CROCKER, Lordsburg.

To Washington, D. C., War College, from Camp Cody, Major J. J. REDDY.

New York

To Army Medical School for instruction, Lieut. R. E. CUMMING, New York.

To Azalea, N. C., from Markleton, Pa., Lieut. J. B. STENBUCK, Brooklyn.

To Camp Crane, Pa., from Camp Dix, Capt. W. G. DICKINSON, Oneonta; from Camp McClellan, Lieut. L. M. ALOFSIN, New York.

To Camp Custer, Mich., base hospital, Major W. M. FORD, New York.

To Camp Devens, Mass., base hospital, Lieut. R. D. RICHMAN, Morton.

To Camp Dix, N. J., base hospital, Lieut. G. S. LAIRD, Westfield.

To Camp Dodge, Iowa, evacuation hospital, from Camp Sheridan, Lieut. L. B. MATHEWS, Brooklyn.

To Camp Greene, N. C., from Fort Oglethorpe, Lieut. F. C. COSTEN, New York. Base hospital, Capt. E. W. KENNEDY, Rochester.

To Camp Hancock, Ga., base hospital, from Camp Sevier, Lieut.-Col. W. BENSEL, New York.

To Camp Jackson, S. C., from Camp Sevier, Capt. L. B. SACHS, New York. As orthopedic surgeon, *from Fort Oglethorpe,* Lieut. W. W. TRACEY, New York. Base hospital, from Camp Sevier, Major W. A. LAWRENCE, White Plains.

To Camp Lee, Va., as assistant to camp surgeon, from Southern Department, Lieut. E. KLINE, New York.

To Camp McClellan, Ala., Lieut. H. FRIEDLAND, New York; from West Raleigh, N. C., Lieut. V. W. WEISS, New York.

To Camp Meade, Md., Lieut. A. STONE, Brooklyn; from Fort McHenry, Lieut. J. D. VERILL, Brooklyn. Base hospital, Lieut. W. PHIPARD, New York.

To Camp Sevier, S. C., from Camp Joseph E. Johnston, Capt. G. S. SKIFF, Gainesville.

To Camp Shelby, Miss., from Camp Wadsworth, Lieut. S. D. EARHART, Clifton Springs. Base hospital, Lieut. M. KEMP, New York.

To Camp Sheridan, Ala., base hospital, from Fort Slocum, Capt. W. M. KENNA, Mount Vernon.

To Camp Sherman, Ohio, from Fort Oglethorpe, Capt. J. J. S. WALSH, New York. As orthopedic surgeon, from Boston, Lieut. H. J. FEASTER, Brooklyn; from Fort Oglethorpe, Lieut. C. L. McNEIL, Poughkeepsie. As tuberculosis examiner, from Fort Benjamin Harrison, Lieut. E. F. SAMPSON, New York.

To Camp Upton, N. Y., base hospital, from Boston, Lieut. A. H. JASON, Brooklyn. *To examine the troops* for cardiovascular diseases, from Camp Devens, Lieut. J. J. H. KEATING, New York.

To Camp Wadsworth, S. C., from Camp Dix, Lieut. F. M. KUJAWA, Buffalo.

To Dallas, Texas, Love Field, from Mineola, Lieut. D. D. STOWELL, New York.

To Fort Benjamin Harrison, Ind., Lieut. H. G. HOTCHKISS, Rochester. Base hospital, Capt. B. R. NAIRN, Buffalo; from Camp Lee, Major E. W. PINKHAM, New York.

To Fort Oglethorpe for instruction, Majors J. S. BILLINGS, Douglaston; P. W. NATHAN, New York; Capts. L. H. SMITH, East Aurora;
R. A. MILLER, Newburgh; E. A. MULLER, New York; F. S. WINS-
LOW, Rochester; A. E. CHACE, Tarrytown; Lieuts. L. L. KRANZER,
J. B. L'EPISCOPO, Brooklyn; C. C. WILLIAMSON, Gorham; S. A.
COMBAS, Hempstead; J. E. WRIGHT, Mendon; F. M. CHAFFEE,
Middlesex; H. PAGE, Newburgh; W. J. DELANEY, W. L. FELT,
B. HUGHES, M. J. MAYER, A. C. SCHWENK, L. N. SMERNOFF,
New York; J. B. DEUEL, Rochester; N. B. PALEN, Walden; from
Boston, Capt. J. L. BENDELL, Albany; from Fort Wayne, Lieut. J. J.
LANCER, New York.
To Fort Snelling, Minn., base hospital, from Camp MacArthur, Capt.
A. VANDER VEER, Jr., New York.
To Garden City, N. Y., Lieuts. E. B. O'KEEFFE, Albany; M.
GROLLMAN, P. YUDSKOWSKY, New York.
To Hoboken, N. J., Major G. H. KIRBY, New York; from Rocke-
feller Institute, Lieut. E. STILLMAN, New York.
To New Haven, Conn., Yale Army Laboratory School, from duty as
an enlisted man, Lieut. D. M. MARKOVSKY, New York.
To Washington, D. C., from Camp Upton, Major R. L. CECIL, New
York; from Camp Wheeler, Major H. R. GAYLORD, Buffalo; from
Edgewood, Md., Major F. G. YOUNG, New York. American Univer-
sity, Experimental Station, from *Fort Oglethorpe,* Lieut. H. W. HAM-
MOND, Franklinville. War College, from Camp Upton, Lieut.-Col.
A. A. SCHOENLEBER.
To Williamsbridge, N. Y., and on completion *to Denver, Colo.,* from
Azalea, N. C., Lieut. S. L. WANG, Staten Island; from Eastern
Department, Lieut. J. J. STEINFELDER, New York.

Honorably discharged, Lieuts. A. FELDMAN, Brooklyn; H. ADLER, New York. On account of physical disability existing prior to entrance into the service, Capt. W. J. C. AUBRY, Cohose.

Resignation of Lieut. J. D. VOORHEES; New York, accepted.

North Carolina

To Camp Hancock, Ga., Lieut. E. C. REITZEL, High Point.

To Camp Wadsworth, S. C., from Fort Oglethorpe, Lieut. J. M. EARNHARDT, Rockwell.

To Fort Oglethorpe for instruction, Capt. W. R. BAKER, Charlotte; from Hampton, Lieut. J. J. BAREFOOT, Graham.

To Rockefeller Institute for instruction in laboratory work, and on completion *to New Haven, Conn.,* Yale Army Laboratory School, from Fort Oglethorpe, Capt. W. P. JACOCKS, Elizabeth City.

The following order has been revoked: *To Hoboken, N. J.,* from Fort McPherson, Major F. M. HANES, Winston-Salem.

North Dakota

To Camp Dodge, Iowa, Capt. J. A. CARTHER, Warwick.

To Fort Riley for instruction, Lieut. W. C. AYLEN, Mandan.

To Fort Sam Houston, Texas., Lieut. A. DEAN, Grand Forks.

Ohio

To Camp Gordon, Ga., base hospital, Capt. E. E. GAVER, Columbus; Lieut. A. H. BERR, Cleveland.

To Camp Greene, N. C., as camp surgeon, from Camp Sherman, Major G. C. BEACH, Jr.

To Camp Hancock, Ga., Lieuts. N. B. OSBORNE, Andover; R. G. FOLLANSBEE, Cleveland; G. A. PARILLO, Girard; B. CLARK, Shandon.

To Camp McClellan, Ala., from Camp Shelby, Lieut. S. W. SAXTON, Steubenville; from Fort Oglethorpe, Lieut. A. M. SHAEFFER, Lancaster.

To Camp Meade, Md., base hospital, Capt. J. A. GOSLING, Tiffin.

To Camp Perry, Ohio, Lieut. G. R. WILKINS, Cleveland.

To Camp Sheridan, Ala., from Camp Lee, Lieut. F. C. PAYNE, Dayton.

To Camp Sherman, Ohio, base hospital, Major R. H. BIRGE, Cleveland.

To Camp Zachary Taylor, Ky., as orthopedic surgeon, from Fort Oglethorpe, Lieut. J. H. CHALAT, Cleveland.

To Fairfield, Ohio, Wilbur Wright Field, Lieut. J. G. MARTHENS, Dayton.

To Fort Oglethorpe, evacuation hospital, from Camp Sheridan, Capt. L. C. COSGROVE, Swanton; from Camp Sevier, Lieut. J. M. McGEORGE, Salem. For instruction, Capts. M. V. REPLOGLE, Bryan; F. J. WOOD, Cleveland; A. COHEN, Cleveland Heights; H. R. WRIGHT, Columbus; J. L. CANNON, Lima; Lieuts. R. E. STEPFIELD, Barberton; T. A. SPITLER, Carey; J. R. MONIHAN, Cleveland; L. M. HERSKOWITZ, E. HUFFER, G. H. SNYDER, Columbus; H. P. TIMBERLAKE, Demos; D. H. BOWMAN, Kenton; J. A. HEELEY, Parkman; A. TOMBAUGH, Williamstown. On completion *to his proper station,* from Garden City, Capt. J. W. TIPPLE, Cleveland.

To Fort Riley to examine drafted men for nervous and mental diseases, from Camp Pike, Lieut. G. H. REEVE, Cleveland.

To Fort Sam Houston, Texas, Lieut. C. S. WILMUTH, Mansfield.

To report to commanding general, Central Department, for assignment to duty, Capt. W. M. METZLER, Vanlue.

To Washington, D. C., for consultation, and on completion *to Camp Sherman, Ohio,* from Rockefeller Institute, Capt. W. C. GATES, Bucyrus. War College, from Camp Sherman, Major H. B. McINTYRE.

The following order has been revoked: *To Camp McClellan, Ala.,* from Walter Reed General Hospital, Major D. M. ROBERTS, New Richmond.

Oklahoma

To Camp Dodge, Iowa, Capt. J. S. LITTLE, Minco.

To Camp MacArthur, Texas, Capt. T. H. FLESHER, Edmond.

To Fort Oglethorpe for instruction, Lieut. G. M. WILKINSON, Delaware.

To Fort Riley for instruction, Lieuts. J. T. KING, Bokosho; S. W. REYNOLDS, Drumright; T. H. McCARLEY, McAlester; P. C. McCALL, O'Keene; H. M. REEDER, Shawnee.

To Fort Sill, Okla., base hospital, from Camp Travis, Lieut. T. J. NUNNERY, Granite.

To report to the commanding general, Southern Department, Capts. F. L. WALTON, Muskogee; H. B. GWIN, Tulsa.

To Rockefeller Institute for instruction in laboratory work and on completion *to New Haven, Conn.,* Yale Army Laboratory School, from Fort Oglethorpe, Capt. G. ELLISON, Norman.

Oregon

To Azalea, N. C., from New Haven, Lieut. F. R. MENNE, Portland.

To Camp Lewis, Wash., base hospital, Capt. T. H. COFFEN, Portland.

To Dallas, Texas, Love Field, from Mineola, Capt. H. L. UNDERWOOD, La Grande.

To Potomac Park, D. C., from Army Medical School, Lieut. F. J. BROWN, Vale.

Pennsylvania

To Boston, Mass., Harvard Graduate School of Medicine, for instruction, from Fort Oglethorpe, Capt. W. M. HOLTZ, Pittsburgh.

To Camp Crane, Pa., from Camp Gordon, Lieut. I. A. DARLING, Warren.

To Camp Custer, Mich., base hospital, Capt. G. E. BOYD, Philadelphia.

To Camp Devens, Mass., as orthopedic instructor, and on completion *to Boston, Mass.,* Harvard Graduate School of Medicine, for instruction, from Fort Oglethorpe; Capt. W. H. HOLTZ, Pittsburgh.
To Camp Dodge, Iowa, as orthopedic surgeon, from Boston, Lieut. J. P.
MAUS, Philadelphia. Base hospital, from Camp Meade, Capt. J. S.
HAMMERS, Danville; *from* Fort Oglethorpe, Major A. DARE, Phila-
delphia.
To Camp Gordon, Ga., base hospital, Capt. J. BEATTIE, Lebanon;
Lieut. H. S. BACHMAN, Philadelphia.
To Camp Jackson, S. C., from Camp Devens, Capt. J. H. WHIT-
CRAFT, Wilkinsburg.
To Camp McClellan, Ala., Capt. G. T. McGRAW, Avondale; from
Camp Sevier, Lieut. R. F. WIVELL, Wilkes-Barre; from Fort Ogle-
thorpe, Lieut. F. B. BLOCK, Philadelphia.
To Camp Meade, Md., Lieuts. J. F. GORMAN, G. W. A. HESS,
Philadelphia.

To Camp Sherman, Ohio, from Camp Wadsworth, Lieut. H. GOOD- [illegible] surgeon, from Camp Dodge, Major B. F. [illegible] orthopedic surgeon, from Boston, Lieut. [illegible], from Camp Lee, Lieut. A. R. SERAPHIN, Pittsburgh; from Columbus Barracks, Lieut. W. T. PALCHANIS, Pittsburgh.

To Camp Zachary Taylor, Ky., from duty as a private, Lieut. J. J. QUINN, Wilkes-Barre.

To Cleveland, Ohio, Lakeside Hospital, from Camp A. A. Humphreys, Lieut. S. P. REIMANN, Philadelphia; from Fort Oglethorpe, Lieut. A. A. REDELIN, Freeland.

To Dallas, Texas, Love Field, from Mineola, Lieut. G. S. CUNNINGHAM, Pittsburgh.

To Fort McPherson, Ga., from Boston, Lieut. W. C. ELY, Philadelphia.

To Fort Oglethorpe for instruction, Capts. C. C. RINARD, Munhall; W. B. DAVIS, L. VAN HOR [illegible] E. L. WHISTLER, Carlisle; R. L. ANDER [illegible] GARRETSON, East Petersburg; A. J. CRAIG [illegible] T. HOPE, Mercer; I. [illegible] FORMAN, Jr., E. S. [illegible] N. FOSTER, G. A. Z [illegible] W. GUSTITES, Shenan [illegible] Camp Joseph E. Johnston, Capt. S. B. HARRIS, Norwood Station.

To Fort Ontario, N. Y., Lieut. M. A. NEWMAN, Wilkinsburg.

To Fort Sam Houston, Texas, Capt. G. C. McMASTER, Pittsburgh.

To Garden City, N. Y., Capt. W. L. SCOTT, Joffre; Lieut. J. A. DOUGLAS, McDonald; C. LAM. SANTEE, Wapwallopen; W. C. SMITH, Woodbine.

To Hoboken, N. J., from Camp Meade, Lieut. S. J. ROBERTS, Etters.

To Lakewood, N. J., Lieut. C. W. ESPY, Wilkes-Barre.

To New Haven, Conn., Lieut. I. C. STALBERG, Philadelphia.

To New York, Bellevue Hospital. for instruction, and on completion *to Camp Dix, N. J.*, base hospital, Capt. S. A. RULON, Phoenixville.

To report to the commanding general, Eastern Department, Capt. G. J. VAN VECHTEN, Scranton.

To Walter Reed General Hospital, D. C., Lieut. E. H. BEDROSIAN, Philadelphia.

To Washington, D C., Major R. M. PEARCE, Philadelphia. American University, Experimental Station, Lieut. C. S. ORRIS, Tarentum.

Philippine Islands

To Camp MacArthur, Texas, as camp surgeon, from Camp Fremont, Major W. P. DAVENPORT, Cebu.

Porto Rico

To Camp Las Casas, P. R., Lieuts. P. S. MALARET, Ponce; E. CUMPIANO, Rincon.

To Camp Wadsworth, S. C., from Camp Meade, Lieut. J. H. FONT, Barronquitas.

South Carolina

To Camp Hancock, Ga., Lieut. J. E. LAND, Anderson.

To Camp Shelby, Miss., base hospital, Lieut. V. W. BRABHAM, Orangeburg.

To Fort Oglethorpe for instruction, Lieuts. B. J. WORKMAN, Charleston; G. H. WALTER, Orangeburg.

To Washington, D. C., War College, from Camp Jackson, Lieut.-Col. L. R. POUST; from Camp Wadsworth, Lieut.-Col. J. F. JOHNSTON.

South Dakota

To Camp Crane, Pa., from Camp Grant, Lieut. A. F. GROVE, Dell Rapids.

To Camp Dodge, Iowa, Lieut. A. S. JACKSON, Lead.

To Fort Oglethorpe for instruction, from Boston, Lieut. L. J. BROOKMAN, Vermilion.

To Fort Sam Houston, Texas, Lieut. F. H. CREAMER, Dupree.

To report to the commanding general, Central Department, Capt. J. F. BARTHELL, Winfred.

Tennessee

To Camp Hancock, Ga., Lieut. L. R. SHEARIN, Memphis.

To Camp Lee, Va., as assistant to the camp surgeon, from Southern Department, Lieut. C. D. ALLEN, Memphis.

To Camp Logan, Texas, as tuberculosis examiner, from Camp Pike, Lieut. M. L. CONNELL, Nashville.

To Camp Shelby, Miss., base hospital, Capt. W. C. McREE, Trenton.

To Camp Sherman, Ohio, base hospital, Lieut. O. W. ROGERS, Knoxville.

To Fo [illegible] hospital, from Camp Upton, Capt. H. H. [illegible] from Fort Screven, Capt. C. D. BLASSI [illegible]

To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieut. A. T. SIKES, Franklin.

To New York, Hospital for Ruptured and Crippled, for instruction, from Boston, Capt. J. R. SHELTON, Oliver, Springs.

Texas

To Boston, Mass., Harvard Graduate School of Medicine, for instruction, from Fort Oglethorpe, Lieut. O. N. MAYO, Belton.

To Camp Bowie, Texas, base hospital, Capt. J. W. HALE, Waco.

To Camp Dodge, Iowa, base hospital, from Fort Benjamin Harrison, Lieut. E. C. BRANNON, Waco.

To Camp Jackson, S. C., base hospital, Major W. RALSTON, Houston.

To Camp Kearney, Calif., Lieut. O. C. MICHIE, Childress; from Fort Riley, Lieut. R. E. CROMEANS, Strawn.

To Camp MacArthur, Texas, base hospital, from Boston, Capt. H. R. DUDGEON, Waco.

To Camp McClellan, Ala., from Fort Oglethorpe, Lieut. L. W. EDWARDS, Nashville.

To Camp Pike, Ark., as orthopedic surgeon, from Camp Bowie, Lieut. F. W. CARRUTHERS, Hillsboro.

To Camp Sherman, Ohio, from Fort Oglethorpe, Capt. C. P. MARTIN, Palestine.

To Corpus Christi, Texas, from Fort Oglethorpe, Lieut. H. F. WILKINS, Fort Worth.

To Fort Oglethorpe for instruction, Capts. W. F. GABERT, Hereford; H. H. ALLDREDGE, Higgins; A. L. RIDINGS, Sherman; Lieuts. G. HOGG, Edna; G. G. CASTLEBERRY, Post; E. P. GOODE, Quinlan; H. P. RUSH, San Angelo; I. B. JOHNSON, Texline; I. E. COLGIN, Waco.

To Fort Riley for instruction, Lieuts. J. A. NEELY, Bellville; W. M. CRUMPLER, Port Art [illegible] 'olfe City.

To New York, Hospital for [illegible] for instruction, from Boston, Capt. J. H. SHEL [illegible]

To report to the commanding general, Eastern Department, from Camp Upton, Major S. NORMAN, Texas City. Southern Department, Capts. S. D. BULLINGTON, Dallas; M. C. BELL, Odessa.

To Washington, D. C., War College, from Camp MacArthur, Lieut.-Col. J. T. AYDELOTTE.

Honorably discharged on account of physical disability existing prior to entrance into the service, Capt. J. W. HILL, Dallas.

Utah

To Camp Lewis, Wash., base hospital, Capts. H. B. FELTS, H. C. JORGENSON, Salt Lake City.

Vermont

To Camp McClellan, Ala., Lieut. S. K. GRAY, East Arlington.

To Fort Oglethorpe for instruction, Capts. C. H. BURR, Montpelier; R. H. MINER, Windsor; Lieut. W. S. SLICER, Roanoke.

To Garden City, N. Y., Lieuts. R. M. WELLS, Orleans; R. H. BURKE, St. Johnsbury.

To Lakewood, N. J., for instruction at the Cardiovascular School, Lieut. R. E. AVERY, East Barre.

To Walter Reed General Hospital, D. C., Capt. W. J. TINDALL, Montpelier.

Virginia

To Camp Beauregard, La., from Camp Joseph E. Johnston, Lieut. M. S. FITCHETT, Norfolk.

To Camp Pike, Ark., as orthopedic surgeon, from Fort Oglethorpe, Lieut. W. I. LAUGHON, Bedford.

To Fort Oglethorpe for instruction, Lieuts. E. M. CHITWOOD, Austinville; T. A. WILLIAMS, Middleton.

Washington

To Camp Kearney, Calif., Capt. I. A. WEISHBREDT, Seattle; Lieuts. R. BARTEAU, Rockford; J. P. LOUDON, Yakima; J. R. SHUMAN, Sunnyside.

To Fort Oglethorpe for instruction, Capt. L. B. BALDWIN, Seattle.

To Fort Riley for instruction, Lieuts. E. L. BRINSON, Acme; T. H. B. RUNNALLS, Puyallup; L. D. LONG, Seattle.

To report to the commanding general, Western Department, Capts. J. E. PRENCEL, St. John; A. G. SNOW, Seattle; Lieut. W. R. SIMMONS, Port Townsend; from San Francisco, Major J. C. BYRNE, Spokane.

West Virginia

To Camp Grant, Ill., as orthopedic surgeon, from Fort Oglethorpe, Lieut. L. E. DAUGHERTY, Davis.

To Camp Shelby, Miss., base hospital, Capt. F. D. FORTNEY, Newberg.

To Camp Wadsworth, S. C., from Camp Lee, Lieut. H. E. WHALEY, Hansford.

Wisconsin

To Camp Crane, Pa., from Camp Upton, Lieut. A. T. JOHNSON, Sauk City; from the Surgeon-General's Office, Major R. H. IVY, Milwaukee.

To Camp Dodge, Iowa, Capt. W. L. STEPHENSON, Ladysmith; Lieuts. E. A. LAPHAM, Rib Lake; G. PARKE, Viola.

To Camp Greene, N. C., to examine the troops for cardiovascular diseases, from Camp Lee, Lieut. E. A. GATTERDAM, Wauwatosa.

To Camp Joseph E. Johnston, Jacksonville, Fla., base hospital, from Fort Oglethorpe, Capt. B. F. HOYT, South Kaukauna.

To Camp Sherman, Ohio, as tuberculosis examiner, from Fort Benjamin Harrison, Capt. H. C. MIX, Green Bay.

To Fort Oglethorpe for instruction, Capt. C. W. GIESEN, Superior; Lieuts. K. H. TRIPPETT, Buckhannon; R. G. HAYS, Friendly; J. F. McNARY, Milwaukee; H. T. SCHLEGEL, Wausaw.

To Fort Riley for instruction, Capts. W. H. FINNEY, Clintonville; W. M. GRATIOT, Mineral Point; F. C. HANEY, Watertown; Lieuts. P. LEICHT, Lake Mills; A. C. NIEMANN, New Holstein.

To Markleton, Pa., from New Haven, Capt. L. W. DUDLEY, Milwaukee.

To Mineola, N. Y., from Madison, Major J. A. E. EYSTER, Madison.

Wyoming

To Fort Riley for instruction, Capt. N. B. NEWCOMER, Sheridan.

To Rockefeller Institute for instruction in laboratory work, and on completion *to New Haven, Conn.*, for instruction, from Camp Beauregard, Lieut. J. F. O'DONNELL, Casper.

Survey of Illness.—The recent influx of negroes into Philadelphia has been a great factor in the city's increasing mortality as well as morbidity. According to the report of Dr. Charles Scott Miller, Chief of the Bureau of Vital Statistics, who, with the aid of registered nurses, has just completed the first illness survey ever made in this city, 514 persons, out of the 12,109 canvassed, were found to be ill. The report further states: The proportion of negroes to whites who were affected with pulmonary conditions is surprisingly high. Colds, bronchitis, grip, etc., run in some cases more than 50 per cent. higher in the negro than in the white. Many are classed under the heading "colds," which should properly be classed under the heading "tuberculosis." On the other hand, bronchitis and asthma are frequent diagnoses among this class of persons to "cloak" real tuberculosis. Under the auspices of the Philadelphia committee, a movement recently was launched among negroes for the purpose of checking the spread of tuberculosis and thereby improving the general health of the city.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest; such as relate to society activities, new hospitals, education, public health, etc.)

CALIFORNIA

Medical College Suspended.—A letter from the College of Physicians and Surgeons of San Francisco states that the college has been suspended.

Personal.—Dr. Clarence A. DePuy, Oakland, has been appointed physician of Alameda County, succeeding Dr. Carl E. Curdts, who has entered the military service.——Dr. Harrison A. Putnam, Inglewood, was struck by an auto truck, while crossing the street, August 8, and was seriously injured. He is being cared for at the Pacific Hospital.

Osteopathic College Not Recognized as Medical School.—A recent communication from the secretary of the California State Board of Medical Examiners states that the College of Osteopathic Physicians and Surgeons of Los Angeles is no longer recognized as a medical school, and that after Aug. 1, 1918, graduates of that school will not be admitted to examinations for licenses as physicians and surgeons.

COLORADO

State Society Meeting.—The forty-eighth annual meeting of the Colorado State Medical Society will be held at Hotel Stanley, Estes Park, September 9 to 11, under the presidency of Dr. Edward Jackson, Denver. Among the papers on the program are those of Lieut. Horace G. Wetherill, M. C., U. S. Army, Denver, medical aide to the governor, on "The Nation's Need of Doctors and Nurses for the Army," and "The Work of the Army Tuberculosis Boards," by Dr. Oscar M. Gilbert, Boulder. Dr. Wetherill will also confer with the the members of the local advisory boards during the meeting, regarding the rulings and provisions of the Provost Marshal-General's Office, and will be prepared to examine applicants for commission in the Medical Reserve Corps. Members of the local medical advisory boards from Wyoming and other adjoining states have been invited to be present at the meeting. Lieut.-Col. John R. Barber, M. C., U. S. Army, chief surgeon at Fort Logan will be guest of honor at this meeting.

DISTRICT OF COLUMBIA

No Commissions at Present for Colored Physicians.—The new draft legislation seriously affects the Washington colored doctors, of whom there is a relatively large number. For a number of months past no commissions as medical officers have been granted to physicians of that race on the ground that the proportion of medical officers for negro troops has already been enrolled. A committee recently sought relief from the Secretary of War for this situation but were informed that there is at present no prospect that more colored medical officers will be needed. This leaves many negro physicians who have vainly volunteered to serve as medical officers face to face with the prospect of being inducted into service by draft.

Honor to Memory of Senator Gallinger.—On August 26, the Washington Board of Trade held a special meeting to pay homage to the memory of the late Senator Jacob H. Gallinger. Resolutions were adopted, voicing the appreciation of the people of the District of Columbia of the distinguished services of Senator Gallinger as a national legislator and especially of the deep interest he had in the affairs of this district and the sympathetic understanding he always displayed of the needs of the city of Washington. This event was of special interest to the medical profession both because Senator Gallinger was himself a physician and because he could always be relied on to further the interests of physicians in legislation affecting them. He was largely instrumental in securing the necessary appropriations for a much needed new and enlarged municipal hospital for Washington, which when completed will be known as the Gallinger Hospital. One of the last acts of his legislative life was to secure the passage by the Senate of an act incorporating the Medical Society of the District of Columbia. This bill (still pending in the House of Representatives) is intended to revive a charter granted the medical society in 1817 and in the interest of historical continuity its passage is much desired by the local profession.

GEORGIA

Practice Act Amended.—Amendments have recently been made to the Georgia Medical Practice Act. Besides correcting certain ambiguities in the law it increases the requirement of preliminary education in the state to two years of college work for all students matriculating in and after the session of 1919-1920; provides for the recognition of certificates granted by the National Board of Medical Examiners, and provides for the revocation of the license of any physician convicted of violating the Harrison Narcotic Law.

District Society Meeting.—At the midsummer meeting of the First District Medical Society, held in Savannah, August 20, Major William C. Lyle, Augusta, medical aide to the governor and supervisor of medical advisory boards of the state, addressed the physicians on the part they are playing in the war, and the following officers were elected: president, Dr. J. Lawton Hiers, Savannah; vice presidents, Drs. William W. Evans, Halcyon Dale, and Harry Y. Righton, Savannah, and assistant secretary and treasurer, Dr. Victor H. Bassett, Savannah, succeeding Dr. Lehman W. Williams, who has entered the military service.

ILLINOIS

Sheridan to Be Reconstruction Hospital.—The War Department, August 21, announced plans for establishing a reconstruction hospital at Fort Sheridan at the close of the student training camp which is now in progress. At the outset the hospital will have a capacity of 1,000 beds, and provisions have been made for an eventual increase to a capacity of 4,000 or 5,000 beds.

Urges Birth Registration.—The Illinois Department of Public Health has discovered that in one county alone in 1917 more than 500 births were improperly reported to the county clerk instead of to the local registrars. The department has therefore written to every county clerk asking for immediate reporting of the stillbirths and deaths recorded in the county clerk's office from Jan. 1, 1917, to July 1, 1918.

Chiropractor Convicted.—A communication from the Department of Registration and Education states that James E. Kane of Decatur, a chiropractor, was fined $500 and costs in the county court of Macon County for treating human ailments without a license. The communication states that Mr. Kane was one of the most flagrant and persistent violators of the laws of Illinois, claiming that in as much as he did not prescribe or administer drugs, it was not necessary for him to hold a license to practice. The case was tried three times before a unanimous verdict against Kane was obtained.

Chicago

Typhoid Carrier Delays Tunnel Opening.—The delay of two weeks in the opening of the Wilson Avenue tunnel and the Mayfair pumping station was due to the discovery that one of the workmen was a typhoid fever carrier.

Alleged Quacks Arrested.—Five persons were arrested in Chicago, August 24, on various charges of practicing medicine without a license. These were "Dr." August Laroich, 1333 Milwaukee Avenue, who is said to have been doing business under the title of the "Associated Doctors"; Dr. Maryan, 906 Milwaukee Avenue, whose specialty is said to have been "mystic bars"; "Dr." Helena Grawin, Fifty-First and Paulina streets, said to be a recent graduate of the chiropractic school operated by Dr. William L. LeBoy, whose license to practice was revoked, August 21 ("Dr." Grawin's specialty is said to have been drugless healing); "Dr." Stanley Kreizer, said to be a "professor of massage and water cure," and "one dentist," a Dr. Nickerson, proprietor of the "Nickerson Dentists" in South Chicago.

MASSACHUSETTS

Personal.—Dr. Francis D. Hart, Worcester, has been appointed associate medical examiner (coroner) to succeed Dr. Ernest L. Hunt, who has resigned to enter the military service.——Dr. Howard P. Bellows, Newtonville, was operated on recently at the Massachusetts Homeopathic Hospital, Boston.——Dr. Jeremiah J. Paglia, Worcester, was the guest of honor at a dinner, August 13. Dr. Paglia has been ordered to duty at Camp Devens, Ayer.——Dr. Frank E. Wheatley, North Abington, has been assigned to duty as medical aide to the governor.

MINNESOTA

Personal.—Dr. Edward W. Buckley, St. Paul, supreme physician of the Knights of Columbus, has returned after six months' survey of the Knights of Columbus war work in France.

Clinic for Masaba Region.—A tuberculosis clinic is to be held in Hibbing this month at which all pre-tubercular cases will be studied. The work will be directed by the local profession in cooperation with the state board of health.

MONTANA

Action on Venereal Diseases.—The state board of health has adopted regulations characterizing syphilis, gonorrhea, and chancroid, as communicable diseases and requiring that all cases be reported, with provisions for quarantine in extreme cases.

Infantile Paralysis Clinic.—During the Montana State Fair, at Helena, Miss Marion Fox, Boston, gave instruction in the after-treatment of infantile paralysis. This work was conducted by the state board of health in cooperation with the management of the State Fair.

Initiative Chiropractic Petition.—The people of Montana are to have the opportunity, Nov. 5, 1918, to vote on the establishment of a law regulating the practice of chiropractic. It appears from the arguments against this measure that the bill providing for the licensing of practitioners of this cult has been repeatedly voted down in that state. It is quite probable that the same result will follow this effort and that the bill will not be enacted.

Free Tuberculosis Examination.—A free clinic for the examination of those suspected to be affected with tuberculosis was held at the court house of Blaine County, Chinook, August 12, under the auspices of the state board of health and the Montana Anti-Tuberculosis Society. Montana has only one state sanatorium, at Galen, which has accommodation for seventy patients, with no provision for incipient cases or for children. There is already a waiting list of 200.

NEW YORK

Cooperstown Institution for Government.—Edward S. Clark of Cooperstown, N. Y., has offered the government the use of the Mary Imogene Bassett Hospital and Pathological Laboratory for the period of the war and one year after. The government has accepted this offer and will use the institution as a general hospital in which special attention will be given to nervous conditions among aviators. An additional hospital building is in process of erection, and will be ready for occupancy early in 1919. Mr. Clark will provide 100 beds and full equipment for caring for them. The balance of the equipment will be furnished by the government. Mr. Clark's only stipulation as to the use of the hospital and grounds is that the government shall not intentionally bring any contagious diseases there. He has placed a small hotel at the disposal of the government until the new buildings are ready for occupancy.

New York City

Violate Harrison Drug Law.—Dr. Emil H. Keidanz and Dr. Solomon Rothman have been arrested and held on $7,500 bail on charges of conspiring to violate the Harrison Drug Law. These men conduct a pharmacy which it is alleged has sold $150,000 worth of habit-forming drugs during the last year. Most of the testimony on which the complaint was based was given by drug addicts. The defendants denied their guilt.

Red Cross Ambulance Service.—An emergency ambulance service for transporting sick and wounded men from transports and railway terminals to hospitals has been organized by the New York County chapter of the American Red Cross. The service is provided through its Motor Corps, which is one of the thirty-five similar organizations in the territory of the Atlantic Division. During the past week the Motor Corps has acquired sixteen new ambulances.

Personal.—Dr. Dudley H. Morris has been appointed police surgeon on probation to succeed Dr. Archibald Smith, resigned.——Dr. Gustav F. Boehme, Jr., has been named temporary police surgeon in place of Dr. Edward T. Higgins, who has been commissioned Captain in the Army Medical Corps.——Dr. Caroline S. Finley, head of the Women's Overseas Hospitals and two doctors of her staff, have been decorated with the French Croix de Guerre for bravery during an enemy air raid.

New York Hospitals Confer with Surgeon-General's Office.—After word had been received from the Surgeon-General's Office that plans had been developed for calling out hospital interns and a certain number of advanced and intermediate medical students, the Hospital Conference of New York held a meeting, August 26, at which it was voted to send a committee to Washington to confer with the Surgeon-General for the purpose of forming a definite plan to furnish the greatest amount of medical and nursing aid to the Army without disorganizing civil hospitals. The Hospital Conference issued a statement setting forth the difficulties under which the hospitals of the city are laboring at the present time, and notes that the War Industries Board has declared that the motion picture business in all of its branches is an essential war industry, yet it has not occurred to any officer of the government to show equal consideration of the hospitals of the country as instruments of public service. An appeal is made to the President of the United States "To direct the War Industries Board, the Provost Marshal-General and the Surgeon-General of the United States Army to formulate, in accordance with existing laws, regulations which, while giving due precedence to immediate military needs, will nevertheless preserve the integrity of the civil hospitals of the country as instruments of public service, essential to the immediate care and comfort of the civil population, and necessary to the conduct of the war, in relation to which the hospitals serve as training schools for medical officers and nurses." The heads of several hospitals belonging to a committee, acting for the American Hospital Association and the Hospital Conference of New York, are working on a standard course of training for hospital assistants in six months for duty in France. It will be urged that hospitals which have not engaged specially in training hospital aids should adopt intensive six months' courses, substituting practical work largely for lecturing.

NORTH CAROLINA

Leonard Medical College Suspended.—A circular letter sent out by President Meserve of Shaw University recommends a temporary discontinuance of Leonard Medical College. The money heretofore expended in that school will be directed toward the further development of the other departments of the university.

Did Not Report Typhoid Fever.—Seven physicians of Robeson County are said to have been convicted during August for violation of the State quarantine law, in that they failed to report cases of typhoid fever as required by the statute. The physicians named are Drs. Nathan H. Andrews, Rowland; Henry H. Hodgin, Roscoe D. McMillan, and Benjamin F. McMillan, Red Springs; William F. Stephens, Fairmont; Daniel S. Currie, Parkton, and Wyatt P. Exum, Goldsboro.——It is said that there have been 150 cases of typhoid fever with eleven deaths among the German civilians and sailors interned at Hot Springs.

NORTH DAKOTA

New Board Members.—Governor Frazier has made the following appointments to fill the vacancies in the state board of medical examiners: Dr. Hugo O. Altnow, Mandan, succeeding himself; Dr. Henry G. Woutat, Grand Forks, to succeed Dr. John N. Ewbank, Rhame, and Francis Peake, Jamestown, to succeed Dr. William J. Breigs, Edgerley.

Supreme Court Decides Against Doctors.—In a decision granted by the Supreme Court, August 14, in the case of W. A. Beardsley versus Drs. Fred E. Ewing and John Ewing, physicians of Kenmare, in which damages were claimed on account of alleged mistreatment in a case of disease of the eye, the decision of the district court is said to have been affirmed which awarded the complainant $7,500 damages.

OHIO

Work on Contagion Unit of Hospital.—Plans to hurry operation on the contagious disease unit of the proposed Youngstown Municipal Tuberculosis Hospital were approved at a joint meeting of the organizations and officials, August 9. Recommendation was made to the state safety director that he at once advertise for bids for the proposed unit, and a committee was appointed to make a statement of the situation to the war chest council, which is to be asked to lend for the completion of the building the difference between the $25,000 now available in the city treasury, and the cost of the building, which is estimated at $45,000 or $50,000. Plans provide for a one-story structure with foundations sufficient for the addition of three or four stories later.

Personal.—Dr. Casper H. Benson, Columbus, physician of Franklin County, and Dr. Stephen A. Douglass, superintendent of the State Hospital at Mt. Vernon, will soon leave for Italy as a part of the commission of fifteen American physicians to be associated in sanitary work.——Dr. Louis J. Wise, Akron, was assaulted in his office and robbed, August 23.——Dr. Daniel W. Philo, Fremont, who underwent operation at St. Vincent's Hospital, recently, is reported to be convalescent.——Dr. Albert H. Herr, Lima, has withdrawn as a candidate for lieutenant governor on the Republican ticket, on account of accepting a commission in the Medical Reserve Corps of the Army.——Dr. Thurman H. Lautenschlager, Youngstown, chief surgeon of the Sharon Steel Hoop Company, has resigned to accept a position in the department of rehabilitation and reconstruction with the government.——Dr. Anderson L. Smedley, health officer of Hamilton since 1912, has resigned to enter the medical service, and has been succeeded by Dr. Henry Krone.

PENNSYLVANIA

Officers Elected.—The Sixteenth Censorial District Medical Society held its eighth meeting at Sayre, July 9. Dr. Donald Guthrie, Sayre, was elected chairman and Dr. Herbert L. McKown, Tunkhannock, secretary for the next meeting.

Personal.—Dr. Edward R. Walters, formerly director of health and charities at Pittsburgh, has been appointed medical adviser to the state workmen's compensation board of the western Pennsylvania district, with headquarters at Pittsburgh.——Dr. Roscoe F. Mauser, Fountain Springs, former resident surgeon at the Shamokin City Hospital, but who has been in service in France for two years, first with the French Ambulance Corps and later with the American Ambulance Corps, has been awarded the Croix de Guerre.——Dr. Thomas B. Kern, Bethlehem, who entered the Medical Reserve Corps last August, has been located in a German prison camp.

Philadelphia

Personal.—Dr. Wilmer Krusen, director of Public Health and Charities, who applied for an appointment in the Medical Reserve Corps, has been denied the appointment as the government considers his services more valuable in Philadelphia's war work.——Dr. Israel W. Rothberg has been appointed a clinical assistant physician to the Philadelphia General Hospital.——Dr. J. Milton Griscom has been elected secretary of the Wills Hospital Ophthalmic Society, succeeding Dr. Harold W. How, resigned.

CANADA

Beland Returns from Captivity.—Hon. Dr. Henri S. Beland, formerly postmaster-general of the Dominion, has returned after three years' captivity in Berlin, during which time he served as assistant to the prison physician.

Four Professorships Endowed.—A recent endowment to the University of Toronto provides a sum of between $500,000 and $750,000 for the establishment of four special chairs to be held by full-time professors. These chairs are, respectively, pediatrics, gynecology, orthopedic surgery, and a fourth to be determined.

Municipal Hospital Act for Alberta.—The Municipal Hospital Act is already in operation in Alberta; four government nurses are already in the field. Edmonton and Calgary will have among their exposition features a demonstration of public health work under the direction of these nurses, and talks on general health lines will be given, together with a display of literature and posters.

Canadian Hospital in France.—The Canadian people through the Canadian Red Cross have established a new Canadian hospital at Joinville-le-Pont near Paris, with accommodation for 500 patients and possibilities for further extension under canvas. The hospital will be under the command of Col. George E. Beauchamp, assisted by Lieut.-Col. Zephyr Rheaume, as chief of the surgical staff, and Lieut.-Col. Jean P. Decarie as chief of the medical staff, all of Montreal.

Psychopathic Institution for Winnipeg.—The General Finance Committee for Winnipeg recently held a meeting to award a contract for the construction of the new psychopathic institute, to be established in Winnipeg, which is to be used for the care and treatment of soldiers from Manitoba, who are suffering from psychopathic conditions. The Provincial government voted $50,000 two years ago for the establishment of this institution, but a sum exceeding this amount will be required. This excess will be provided for by a special vote at the next session of the Provincial legislature.

Hospital News.—Hereafter no alien enemies in Toronto will receive free treatment in any of the hospitals of that city.——A new military hospital is to be established at Ongwanada, Ont. It will have 1,000 beds The grounds and building have been donated by the Maple Leaf Milling Company of Toronto.——According to Col. Clarence Starr the surgery of the war is distinctly orthopedic. The Canadian government is establishing five orthopedic hospitals in Canada, namely, at Toronto, Halifax, Montreal, Winnipeg and Vancouver. The Toronto institution will have a capacity for 1,500 beds.——Work on the Rosedale Military Hospital, Toronto, commenced about the middle of July. It will provide accommodation for 2,000 soldiers.

Personal.—Dr. Frederick N. G. Starr, Toronto, has gone overseas to join the Royal Army Medical Corps.——Capts. Donald T. Fraser, M. C., and W. G. Shepherd, Toronto, who have been with the British expedition at Wei Hai Wei, China, have been commended by the Militia Department, Ottawa, for valuable services rendered to the natives in that area.——Capt. William E. Ogden, chief medical officer, Spadina Military Hospital, Toronto, has been advanced to the rank of major.——Dr. Grant Cunningham, a former Army medical officer, has succeeded Dr. C. A. MacKay as medical officer of the Invalided Soldiers' Commission, Toronto.——Col. Arthur E. Snell, Toronto, received the D. S. O. two years ago, and has recently been awarded the Order of Companion of St. Michael and St. George.——Dr. Simeon E. Grondin, Quebec City, has been elected president of the Canadian Medical Association. The association will meet in Quebec City in 1919, for the first time in nearly twenty-five years.——Col. Wilbert G. Fraser, Ottawa, has been appointed A. D. M. S. of the Petawawa Camp near that city.——Dr. C. A. MacKay, Toronto, has left for St. John, N. B., where he will be medical director for the Invalided Soldiers' Commission in New Brunswick.——Dr. George L. Hodgins, for some time on the staff of the Toronto Free Hospital for Consumptives, Weston, Ont., has left for the Pacific Coast where he will reside and practice in the future.——Capt. Benjamin L. Guyatt, of the Toronto Military Base Hospital, was recently made M. O. C., Camp Borden, Ont.

FOREIGN

Meeting of French Surgical Association.—The Twenty-Seventh French Surgical Congress is to convene at Paris, October 7 to 10. Three subjects have been appointed for discussion, namely, extraction of projectiles in the chest; treatment and remote results of war wounds of nerves, and removal of splinters and repair of losses of bone substance. There will be no addresses on these questions, and no communication on any other subject will be allowed. The secretary general of the meeting is Dr. J. L. Faure, 10 rue de Seine, Paris.

Annual Meeting of Italian Pediatrists.—The Ninth Congress of Italian Pediatrists was held at Rome, recently, and the deliberations are said to have marked great progress in the coordination of the teaching of pediatrics with the national movement for welfare work for children of all ages, and especially for infants. Professor Concetti, director of the *clinica pediatrica* at Rome, presided, and in his address told what has been done in these lines in other countries. Baduel described the fine results accomplished by the Italian Red Cross in infant welfare work, and the undersecretary of state for the department of public instruction emphasized the highly patriotic nature of any and all attempts for improving conditions for children—the future forces of the nation. Cacace emphasized the necessity for systematic study of the child from the standpoints of biology, psychology, hygiene, and the clinical, historical, sociologic and legal standpoints. Professor Tedeschi delivered the main address, on the necessity for transforming the teaching and the practice of pediatrics to make it conform to the actual needs of the child, free from tradition, prejudice and sentimentalism. He and Pacchioni outlined legislation to make it compulsory for all midwives and perhaps for all girls between 15 and 18 to take a course of training in the care of infants and children. Pachioni urged that pediatrics should be taught during two whole years of the medical course, and by professors with practical experience. He urged further the widespread education of the public in the care of young children, and efforts to combat professional wetnursing. Comba discussed the possibility of organizing forty-day courses in pediatrics for the town and country medical officials, the *medici condotti*.

An Italian View of the Proprietary Evil.—Prof. A. Murri is professor of clinical medicine at Bologna, and one of the leaders of the profession in Italy, now in his seventy-eighth year. In a letter published in the *Medico Italiano*, he protests against the way he is being importuned to prescribe only made-in-Italy pharmaceuticals. He declares his unswerving patriotism, but insists that:

"Drugs should be classified as the 'useful and the useless,' not 'Italian or foreign.' Unlimited nationalism should be left to the nation which has invented maritime assassination. We Italians are the disciples of Mazzini, the allies of Wilson; we are battling above all for a moral purpose, to establish our own rights and the rights of others. Our patients have the right to expect from us the advice which will conduce most to their recovery, whether it benefits or not the manufacturing chemists of our country. Our most sacred duty is to do for them what will aid best to restore them to health. And here, thank God, we can serve at the same time the supreme behests of our conscience, and the prosperity of the manufacturing chemists and pharmacists of our country. But in order to do this we do not have to slander every foreign product and exalt every domestic product. What we must do is to sterilize the mephitic fungus growth of pseudochemistry which chokes the pharmacies and the advertising pages with preposterous pharmaceuticals. Those who put them out make money with them because no one protests that the health and the life of human beings are wares that cannot be exploited to enrich others. The humblest mixer of chemicals, who may not even know where the stomach is situated in man, may yet get some physician to testify to the wonderful virtues of some concoction in which arsenic, iodin and iron are compelled to blend, and on which some Greek or fancy name confers the powers to make it proclaimed a restorer of all the biologic forces.

"These self-styled benefactors of mankind speculate with absolute confidence on that pestiferous plague of the human soul, credulity.

"To aid the chemical-pharmaceutic industry in Italy, it is necessary to purge it, elevate it, winnow it. We must found a supreme council of chemists, pharmacists and clinicians, not only experts but incorruptible, who would examine the made-in-Italy pharmaceuticals with the severest scientific impartiality. This certainly would not uproot from the world that evil plant, credulity. There will always be, if not the ignorant, the stupid, which, like a baby, accept the secret, the mysterious, the miraculous. But good Italian physicians when they can be sure that in prescribing a product made in Italy they are serving the best interests of their patients, will never think of prescribing a foreign product. And I shall be the first to obey the dictates of competent persons who are devoted to the truth and not to the chase for gold or the mistaken conception of the duties which a physician owes to his country and to the health of the sick in his charge."

SOUTH AND CENTRAL AMERICA, MEXICO AND WEST INDIES

Death of Ayerza.—Dr. A. Ayerza, professor of clinical medicine at the University of Buenos Aires, author of numerous works on various medical topics, and vice president of the Consejo Nacional de Educacion, died July 14, aged 57.

Personal.—Dr. R. P. Vento has been advanced to the chair of physiology and medical physics, left vacant by the death of Prof. M. S. Toledo, at the University of Havana.——Dr. Carlos Chagas has been elected honorary professor of the University of Bahia, Brazil.

Da Rocha Retires from Army Medical Service.—The government of Brazil has accepted the resignation of General Ismail da Rocha of the medical corps of the army. His long years of service in the Corpo de Saude of the army, his collaboration on the medical press and in matters affecting the welfare of the profession in general, and his extensive private practice, it is considered, entitle him to withdraw from active service.

Subsidy for the Annals of the Uruguay Medical School.—The handsome journal issued by the medical faculty of the University of Montevideo, to contain the annals of the institution and other matters affecting the medical department and medical education, is now in its third volume. The legislature was recently appealed to for a larger subsidy for the undertaking, and it was voted to raise the appropriation for the purpose from $2,000 to $4,000.

Monument to Carrion.—The Fifth Latin-American Medical Congress, which was held at Lima in 1913, voted to erect a monument at Lima in honor of young Carrion who attempted to prove in his own person by scientific experiment the identity of Peruvian verruga and Oroya fever. The sum of 1,000 milreis was recently forwarded to the committee in charge of the matter, subscribed by physicians in Rio de Janeiro and S. Paulo. The treasurer of the fund is Prof. L. Avendano of the Faculdad de Medicina of Lima, Peru.

Medical Bibliography of Brazil.—The Academia Nacional de Medicina has appointed a committee to collect data to enable the publication of the complete medical bibliography of Brazil. The committee appointed in charge of the work consists of Drs. A. Nascimento, O. da Fonseca, J. Moreira and B. Valverde. They are now sending out questionnaires to all the medical men in Brazil asking for copies of all works or reprints and details as to the publication of all articles and works bearing in any way on the medical sciences. A resident physician in each district has also been appointed to collect data.

Rio to Have Institute of Radiology.—The medical faculty of the University of Rio de Janeiro has voted unanimously in favor of organizing a model Instituto de Radiologia, with the assistance of the government. The present roentgen institute is to be enlarged and form part of the new institution, and there is to be a department for radium therapy. The minister of foreign affairs has been solicited to obtain from the United States, through the Brazilian embassy, the quantity of radium necessary for the purpose. The committee in charge of the organization of the new institute comprises Professors Terra, Peixoto, A. Porto and E. Rabello, with Prof. A. de Castro as the spokesman.

A CORRECTION

Formaldehyd-Phenol in Camphor Paraffin.—In the issue of August 24, page 688, in the abstract of the article by Connell on "Formaldehyd-Phenol in Camphor Paraffin," the formula for Connell's antiseptic calls for a 0.5 per cent. addition of formaldehyd to the mixture to be obtained by adding 5 parts of a 10 per cent. solution of formaldehyd in alcohol to 9 parts of the mixture. This should have read 95 parts instead of 9 parts.

LONDON LETTER

London, Aug. 7, 1918.

Another Hospital Ship Torpedoed

Another hospital ship has been torpedoed by the Germans. She had taken on board at a foreign port about 600 wounded, the majority seriously, a number of the Women's Army Auxiliary Corps, the usual complement of medical officers, and a crew of 115. The attack occurred some miles from land, the night was pitch dark and the sea was decidedly choppy. Few of those on board would have been saved had not the ship, though badly damaged, been able to remain afloat for two hours. The torpedo completely smashed one of the wards occupied by cot patients, many of whom must have been killed outright by the explosion. The ship's officers and crew were quickly at their posts, and the order "wounded first" was, of course, followed. Every one kept their heads and the medical staff is described as magnificent in bringing the men from the wards to the deck. Man after man had to be carried as he lay in his cot, and it was a very trying task to get them into the boats. Every one who could lend a hand went below to bring up the wounded. They were picked up by destroyers. The number missing and presumed drowned are 116, which includes two medical officers and one United States soldier.

The Annual Meeting of the British Medical Association

The eighty-sixth annual meeting of the British Medical Association has been held in London. As in the three preceding meetings during the war, scientific proceedings and social functions have been excluded and the meeting confined to the discussion of medical politics by the representative body. Sir Clifford Allbutt, who was elected president in 1914 for the annual meeting arranged to take place in 1915 at Cambridge and has been reelected ever since, was again reelected, constituting a record which is likely to remain unique. The finances of the association have been adversely affected by the war. After providing against depreciation and all visible liabilities, the balance to be carried forward to the surplus funds was $14,000. The receipts of the association are lower by $6,000 owing to the increase in the number of members serving abroad who pay a reduced subscription. The difficulties in publishing the *Journal* have been further increased. The price of paper has advanced until for a paper of inferior quality five times the prewar rate is being paid. The expenditure on paper in 1916 was $40,000; in 1917 it was $65,000, and the cost of printing was also higher. A satisfactory feature was an increase of $7,000 in the revenue from advertisements. But it is reckoned that the diminished number of pages in the present issues will not be compensated for by the increased rate charged. The paper supply has been cut down by the government more drastically than was expected, and instead of as in prewar times about sixty or seventy pages of reading matter and as many of advertisements, there are now only about thirty-two of each. The question of raising a voluntary fund to assist the candidature of physicians for seats in Parliament was discussed. While the desirability of the medical profession's being more fully represented was admitted, the difficulties of any scheme were realized. Almost of necessity a member of Parliament must belong to one of the political parties in existence and owe allegiance to it and not to the profession. If he came forward as representing the medical profession he would be defeated. The proposals for a state-aided midwifery service were considered. A resolution was carried that it would be detrimental to the public interest that the practice of normal midwifery should be placed solely in the hands of midwives; also that, in any scheme for the improvement of the midwifery service, private physicians should be responsible for the clinical supervision of midwives. The desirability of a ministry of health was endorsed, and it was resolved to cooperate with the Royal Colleges and other public medical bodies in pressing the project on the government.

The Male Birth Rate and the War

In The Journal, June 1, 1918, p. 1619, I referred to the increase of male births in proportion to female that has taken place during the war. The figures are 1,049 males to 1,000 females during 1916 against 1,033 to 1,000 in the preceding five years, and the proportion is the highest recorded during the last half century. In the *Daily Mail*, a woman physician, Dr. Arabella Kenealy, discussing the problem how to raise the male birth rate, accepts the explanation that it is Nature's method of compensating for the male losses of life in the war, and she gives a very interesting explanation. She expounds the view that sex is determined by the relative vital power of the parents. When the vital power is greater in the father, daughters predominate; when in the mother, sons. As men make greater efforts as bread-winners she thinks that women's power is more conserved and thus she accounts for the normal preponderance of male births. The father being thus in a special sense the parent of the daughter and the mother of the son, each sex inherits preponderantly from the other. Parental power is not available for output but is locked up in the constitution—invested vital capital, not vital income available for expenditure. But just as to meet an increase of daily expenditure one may have to realize investments, so to meet increased bodily or mental activity one must draw on constitutional capital by converting vital investments into vital currency. Now the stress of war falls most heavily on men, and to meet the strain they draw on their vital reserves. Hence their parental power is diminished in comparison with women, and male births increase. Dr. Kenealy states that the strain—educational, athletic and industrial—put of late years on adolescent girls has raised the female birth rate by decreasing women's maternal power and thus relatively increasing men's paternal power. In the cultured classes particularly, she finds that strenuous games during the years of development have so weakened women's constitutional and maternal power as to cause a huge excess of girl births. By forbidding all strenuous activities, social or athletic, before and after marriage, Dr. Kenealy states that she has frequently succeeded in securing male offspring in patients whose stock had for generations produced girls exclusively.

PARIS LETTER

Paris, July 25, 1918.

Treatment of Purulent Arthritis

At one of the recent meetings of the Société de Chirurgie de Paris, Dr. Willems of Ghent reported the good results which he had obtained by means of active mobilization as a means of draining an arthrotomized joint. In a case of arthrotomy of the knee, for example, every time the patient extends and flexes the knee, the two synovial surfaces come in contact and glide one over the other, thus forcing the pus out of the wound. If these movements are made often enough and for a sufficient length of time, the pus is expelled from the joint almost as rapidly as it forms, and retention need not be feared. Three conditions are necessary to achieve this result: Make the incision sufficiently long, passing above the subtricipital bursa and down to the line of articulation; keep the incision open all the time throughout its entire length; institute maximum movements as soon as possible, in fact, very early. When the joint begins to become dry, there is a tendency to locking of the joint; this tendency to stiffness may be prevented by making a progressive closure of the wound by secondary suture.

The perfect drainage of the articulation which is assured by the active mobilization presents the following advantages: The infection is limited to the synovia; the temperature is kept down, rarely passing 38 C. in the evening; the general condition of the patient remains excellent; the muscles do not atrophy; the motion of the joint is entirely conserved. Willems has treated twenty cases of purulent arthritis involving the large articulations—these cases being caused by war wounds: knee, 11; elbow, 4; tibio-tarsal articulation, 5. A complete cure was obtained in 13, that is to say, with conservation of motion and of the musculature; in two cases motion was not complete; four ankyloses; resection was required in only one case.

Primary or Secondary Suture of the Soft Parts in Fracture Cases

Now that primary and secondary suture of wounds limited to the soft tissues or of wounds of the joints is recognized as a classical intervention, it seems that the same procedure should be adopted in cases of fracture. In this connection it is of interest to refer to 115 cases of this type reported to the Société de chirurgie de Paris by Dr. Thévenot. Among these 115 cases there were 88 cases of primary suture and 27 cases of secondary suture. These sutures were done in cases of fracture of the femur, of the leg, arm and forearm. The result obtained shows conclusively that such suture is fully justified, as much so as it is in cases of wounds of the soft tissues. What is the proportion of wounded who should benefit from that procedure? In quiet periods, Thévenot has done immediate suture in 40 per cent. of the cases. During an attack, when the wounded are not recovered so soon and the special sanitary formations receive only the severe cases (the mild cases of fracture being immediately switched to the rear by all sanitary formations), the percentage of primary sutures diminishes considerably. During the rush of work incident to an attack it is better, in doubtful cases, to disinfect and drain the wound, because it releases the services at the front so that they can receive the newly wounded, evacuate rapidly the men in course of treatment to the formations situated farther in the rear, which will make the secondary suture.

Reform in Medical Teaching in Paris

The Council of the Medical Faculty of Paris has prepared a report on the results of an examination into ways and means as to how medical teaching can be carried on after the war, in order that the medical school can sustain competition with medical schools in other countries. Important reforms have already been instituted during the course of the war. Among these, it may be noted, that since November, 1917, several teaching clinics have been held in the afternoon. Before that time they had been held only mornings. This permits students and physicians to get well coordinated instruction in the hospitals at any hour of the day. It is possible now to acquire in two or three months the knowledge which formerly would have taken over a whole year. This afternoon clinical teaching will be developed after the war, and the faculty proposes to combine this teaching with much lecture work (*un vaste enseignement libre*) entrusted to the hospital physicians.

The faculty believes that it is also urgently necessary to establish an Institut de biologie médicale for purposes of experimental research, and to construct a model hospital conforming to modern needs in every particular. This work will cause a considerable expense, therefore the faculty has made an urgent appeal to the public authorities. In order to encourage private contributions, the Association des amis de la Faculté de médecine has been organized. The first and organization meeting will be held next November, and will be attended by all those who wish to donate, bequeath or pledge themselves for a certain sum to the progress of medicine and the expansion of the influence of France. On the other hand, the medical faculty has agreed to extend its relations with the neutral countries and the allies. It has under consideration the project of interchanging students and professors. For the next school opening, the faculty has arranged several conferences which will be held by savants from America, England and Spain.

Deaths

Arthur David Dryfoos, New York City; College of Physicians and Surgeons in the City of New York, 1899; aged 41; at one time a Fellow of the American Medical Association; a member of the Medical Society of the State of New York; formerly captain, M. R. C., U. S. Army; assistant neurologist to the Vanderbilt Clinic, and attending neurologist to the German Dispensary and the Lebanon Hospital; was found dead in his office, August 22.

Dayton Parker, Detroit; Detroit Medical College, 1876; aged 72; a veteran of the Civil War; one of the founders and vice president of the Michigan College of Medicine and Surgery, Detroit, and one of the founders of the Emergency Hospital, Detroit; police surgeon of Detroit from 1901-1906; once a member of the state board of charities; died at his home, August 19, from heart disease.

Frederick Henry Cleaves, Boston; George Washington University, Washington, D. C., 1887; aged 54; a Fellow of the American Medical Association, and a member of the Association of Military Surgeons of the United States; acting assistant surgeon, U. S. P. H. S., since 1901; died at his home at Brookline, Mass., August 18.

Charles J. Meade, St. Paul; McGill University, Montreal, 1892; aged 48; a Fellow of the American Medical Association; formerly professor of clinical medicine in Hamline University; visiting physician to the City and County Hospital and St. Joseph's Hospital, St. Paul; died at his home, August 22, from heart disease.

Lieut. Frank Butler Sanders, M. R. C., U. S. Army, Hagood, S. C.; Medical College of the State of South Carolina, Charleston, 1910; aged 30; a Fellow of the American Medical Association; on duty with the American Expeditionary Forces in France; was killed, July 24, by the accidental explosion of a shell.

John Joseph Keating, Brooklyn; Baltimore Medical College, 1898; aged 42; supervisor of milk inspection for the New York Department of Health; for several years a member of the staff of St. Catherine's Hospital, Brooklyn; died at Saranac Lake, N. Y., August 16, from tuberculosis.

Milton Henry Haskins, Denver; Northwestern University Medical School, Chicago, 1875; aged 67; formerly coroner and health officer of Kingman County, Kan., and local surgeon of the Missouri Pacific system; died at his home, August 15, from uremia due to prostatic hypertrophy.

Died in the Service
IN FRANCE
Lieut. Frank B. Sanders, M. C.,
U. S. Army, 1888-1918

Louis H. A. Schneider, New York City; College of Physicians and Surgeons in the City of New York, 1890; aged 49; a Fellow of the American Medical Association; a member of the Alumni Association of Bellevue Hospital; died at his home, August 22, from cerebral hemorrhage.

Robert John McFall, Paris, Tenn.; Vanderbilt University, Nashville, Tenn., 1892; aged 51; a Fellow of the American Medical Association; while driving over a grade crossing in Paris in his automobile, August 14, was struck by a train and instantly killed.

Niels C. Evans, Mount Horeb, Wis.; University of Illinois, Chicago, 1884; aged 61; a Fellow of the American Medical Association; at one time a member of the general assembly from the western district of Dane County; died at his home, August 21.

Ogden Hoffman Reynolds, Frankfort, Ky.; Kentucky School of Medicine, Louisville, 1888; aged 61; a Fellow of the American Medical Association; died in the King's Daughters Hospital, Frankfort, August 21, from acute peritonitis.

William Henry Mason, Stockton, Calif.; Albany (N. Y.) Medical College, 1911; aged 33; radiologist at the Stockton State Hospital; died at his home in that institution, August 20.

Una Howe Hasskarl, Brenham, Texas; University of Texas, Galveston, 1912; aged 31; a member of the State Medical Association of Texas; was killed instantly, July 10, in an automobile accident, 8 miles north of Dallas, Texas.

George K. Ewing, Ewington, Ohio; College of Physicians and Surgeons, Baltimore, 1881; Medical College of Ohio, Cincinnati, 1890; aged 61; a Fellow of the American Medical Association; died at his home, August 17.

George D. Brinkman, Springfield, Ohio; Starling Medical College, Columbus, Ohio, 1886; aged 64; for many years jail physician; died in the Springfield City Hospital, August 19, from cerebral hemorrhage.

John Sidle Burnett, Akron, Ohio; Ohio Medical University, Columbus, 1897; aged 52; at one time a member of the Ohio State Medical Association; was instantly killed by a fall from a bicycle, August 26.

John Emmet Gable, West Palm Beach, Fla.; Hahnemann Medical College, Chicago, 1909; aged 51; while driving into West Palm Beach, August 11; died in his automobile from cerebral hemorrhage.

John P. Wickersham, Peru, Ind.; Chicago College of Medicine and Surgery, 1917; aged 37; died at the home of his mother in Seaman, Ohio, June 24, from tuberculosis of the intestines.

Jacob Outwater Polhemus, Nyack, N. Y.; College of Physicians and Surgeons in the City of New York, 1869; aged 54; died in the Nyack Hospital, July 20, from arteriosclerosis.

Frederick William Hill, Brooklyn; Eclectic Medical College of the City of New York, 1900; aged 44; died at his home, August 7, from abscess of the lung.

Anson Jerome Avery, Northville, N. Y.; Berkshire Medical College, Pittsfield, Mass., 1867; aged 74; died at his home, August 16, from cerebral hemorrhage.

Joshua George Wolfe, Ashland, Ky.; Hospital College of Medicine of Louisville, Ky., 1906; aged 51; died at his home, August 23, from heart disease.

Samuel S. Alexander, Christianburg, Ky.; University of Louisville, Ky., 1853; aged 85; died at his home, August 12, from cerebral hemorrhage.

Edward Henry Stevens, Athens, Pa.; New York University, New York City, 1888; aged 51; died at his home, August 12, from nephritis.

Clarence B. Putnam, Colusa, Calif.; Missouri Medical College, St. Louis, 1883; aged 57; died at his home in Marin County, August 4.

Robert Lee Kurth, Curreyville, Tex.; University of Texas, Galveston, 1916; aged 25; died, July 17, after an operation for appendicitis.

William Richardson Barker, Malden, Mass.; Dartmouth Medical School, Hanover, N. H., 1863; aged 95; died at his home, July 28.

Thomas A. Bair, Sabinsville, Pa.; Jefferson Medical College, 1879; aged 70; died at his home, June 14, from cerebral hemorrhage.

Rudolph Berendsohn, Brooklyn; Long Island College Hospital, 1881; aged 78; died at his home, August 16.

Marriages

Lieut. David Andrew Bigger, M. R. C., U. S. Army, Rock Hill, S. C., on duty at Camp Crane, Allentown, Pa., to Miss Hazel Mott of Watsonville, Calif., at Allentown, Pa., August 3.

Lieut. John Alexander McIntosh, Jr., M. C., U. S. Army, Memphis, Tenn., on duty at Camp Greenleaf, Ga., to Miss Ethel Brown, also of Memphis, August 19.

Lieut. Theodore LeRoy Story, M. R. C., U. S. Army, to Miss Theresa May Hiney, both of Hartford, Conn., June 29.

Capt. Vernon Roberts, M. C., U. S. Army, National Home, Wis., to Mrs. Armin Mueller, in New York City, July 24.

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

DR. A. W. CHASE'S NERVE PILLS

Contribution from the Chemical Laboratory of the American Medical Association

A. H. Clark, Ph.G., B.S.

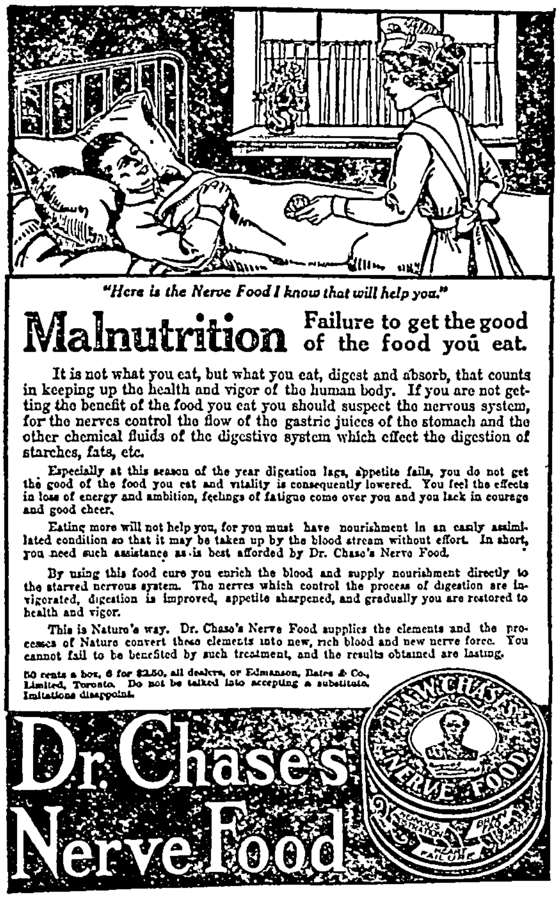
The label on the box of "Dr. A. W. Chase's Nerve Pills" states that they are "prepared for the Dr. A. W. Chase Medicine Co., Props., Buffalo, N. Y.," and that they are "used in the treatment" of "thin and watery blood, nervous disorders, brain fag, nervous headache, nervous dyspepsia, irregular heart action, sleeplessness," etc. A circular within the box sets forth the alleged virtues of these pills and of other products of the company. This circular calls attention to the use of these pills in the treatment of almost everything from pale, sallow complexion, to paralysis and locomotor ataxia. Sexual debility and female troubles occupy a prominent place among the diseases and symptoms which are made "next to impossible of occurrence" through the use of these pills.

The circular declares that on every box of these pills will be found a portrait of Dr. A. W. Chase, of Chase's Family Recipe Book fame. The inference is that these pills are made according to a formula in this book. A careful search of Chase's Recipes, or Information for Everybody,[1] also a later edition[2] failed to reveal :. formula for any such pills as the ones purchased. On page 130 of the 1900 edition a formula is given for "Nervous Pills." These are essentially an alcoholic extract of Ignitia amara (St. Ignatius bean). These were said to be originated in 1854 by Rev. John W. Dagnal, the "Retired Physician," and much used by Professor Palmer of the University of Michigan. Dr. Repheto[3] calls attention to these in answer to an inquiry about Chase's pills. He states that this formula was much used by eclectics and because of poor results Dr. John King of Cincinnati introduced a substitute composed of extract of gentian, powdered savine leaves, powdered Ignatius leaves, and iron iodid.

The examination made in the chemical laboratory, discussed below, shows that "Dr. A. W. Chase's Nerve Pills" do not correspond in composition to pills prepared by either of the formulas mentioned above. They are coated, chocolate colored, and have a strongly persistent bitter aloes-like taste. The coating readily washed from the pills but the pill mass did not readily disintegrate. Even standing over night in water they were not entirely disintegrated.

The pills weigh approximately 0.318 gm. (5 grains) with coating; the medicament alone weighs 0.210 gm. (3.5 grains). Microscopic examination did not show vegetable structure. Qualitative examination showed the absence of chlorids, bromids, iodids, phosphorus and phosphorus compounds. Abundance of sulphate was present, also carbonate. Iron and manganese were present in large quantities, calcium and sodium in lesser amounts, aluminum and magnesium in small amounts. The manganese was probably present as black oxid (manganese dioxid), since the manganese did not dissolve in water, and the pills with hydrochloric acid gave abundance of chlorin. Emodin bearing drugs were present and alkaloids also were present in small amounts. Iron, manganese, and sulphate were determined quantitatively. The iron oxid weighed indicated the presence of iron equivalent to 0.0395 gm. (⅔ grain) anhydrous ferrous sulphate in each pill. The amount of manganese pyrophosphate obtained indicated manganese equivalent to 0.021 gm. (⅓ grain), manganese dioxid in each pill. The quantity of alkaloid present was so small that it could not be determined accurately.

The chemical examination indicates that these pills contain iron, possibly in the form of ferrous sulphate which is in a state of more or less decomposition due to exposure and contact with the other constituents of the pills, manganese dioxid, aloes or aloin, vegetable extractive, and traces only of some alkaloidal drug.



"Here is the Nerve Food I know that will help you."

Malnutrition Failure to get the good of the food you eat.

It is not what you eat, but what you eat, digest and absorb, that counts in keeping up the health and vigor of the human body. If you are not getting the benefit of the food you eat you should suspect the nervous system, for the nerves control the flow of the gastric juices of the stomach and the other chemical fluids of the digestive system which effect the digestion of starches, fats, etc.

Especially at this season of the year digestion lags, appetite fails, you do not get the good of the food you eat and vitality is consequently lowered. You feel the effects in loss of energy and ambition, feelings of fatigue come over you and you lack in courage and good cheer.

Eating more will not help you, for you must have nourishment in an easily assimilated condition so that it may be taken up by the blood stream without effort. In short, you need such assistance as is best afforded by Dr. Chase's Nerve Food.

By using this food cure you enrich the blood and supply nourishment directly to the starved nervous system. The nerves which control the process of digestion are invigorated, digestion is improved, appetite sharpened, and gradually you are restored to health and vigor.

This is Nature's way. Dr. Chase's Nerve Food supplies the elements and the processes of Nature convert these elements into new, rich blood and new nerve force. You cannot fail to be benefited by such treatment, and the results obtained are lasting.

50 cents a box, 6 for $2.50, all dealers, or Edmanson, Bates & Co., Limited, Toronto. Do not be talked into accepting a substitute. Imitations disappoint.

Dr. Chase's Nerve Food

"Dr. A. W. Chase's Nerve Pills" used to be called "Dr. Chase's Nerve Food" before the Federal Food and Drugs Act made falsifying expensive. Then "Food" became "Tablets" and, later, "Pills." In Canada, however, it continued to be sold as a "Food." The illustration above is a reduced photographic reproduction of an advertisement in a Canadian magazine.

TWO MISBRANDED NOSTRUMS

Brazilian Balm.—B. F. Jackson & Co., Arcade, N. Y., were alleged to have shipped into Massachusetts a number of packages of "Brazilian Balm." The claims made for this stuff, either direct or inferential, were to the effect that it would cure consumption, prevent lockjaw and would "clear out of the system" the germs of typhoid and diphtheria. These and many other claims were designated by the federal authorities as false and fraudulent. As no one claimed the property, the court condemned it and ordered that it should be destroyed.—[*Notice of Judgment No. 4764.*]

Wright's Indian Vegetable Pills.—The government filed a libel for seizure and condemnation of 1,080 packages of "Wright's Indian Vegetable Pills" charging that the claims made for them were false, fraudulent and misleading. The claims were to the effect that the pills would cure yellow fever, smallpox, erysipelas, consumption, cancer, venereal disease, paralysis, epilepsy and other conditions too numerous to mention. The government, on the other hand, charged that "in truth and in fact it was not of a medical nature such as would produce any such results and was entirely worthless for that purpose." The Wright's Indian Vegetable Pill Co., New York, admitted the allegations of the libel and the court permitted the product to be delivered to the company on payment of the costs of the proceedings and the execution of a bond in the sum of $250.—[*Notice of Judgment No. 4591.*]

Keeping Well in China.—Beware of Chinese cooking. It is frequently very rich and its tastiness often leads to overindulgence and indigestion.—American Chamber of Commerce of China.

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[1] By A. W. Chase, M.D., Published by R. A. Beal, Ann Arbor, Mich., 1900.

[2] Dr. Chase's Combination Receipt Book, F. B. Dickerson Co., Detroit, 1915.

[3] Medical World, Aug. 1912, p. 336.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

PHYSICIANS AND THE SELECTIVE SERVICE LAW

To the Editor:—For the last six months I have been about to make application for appointment in the Medical Reserve Corps, but had to defer it until now. I have a good opportunity to take about four weeks of postgraduate work at this time which I wish to do before making such application. However, under the new draft law I shall be a registrant on September 12. 1. I desire to know, in this connection, what effect, if any, will the fact of my registration have on my privilege of joining the Medical Reserve Corps later. 2. Would there be any advantage in my applying now, and taking the postgraduate work referred to afterward, or in proceeding as I have planned, that is, to take the postgraduate work first. B. F. W., Iowa.

ANSWER.—1. Application for a commission in the Medical Reserve Corps may be made before or after registration, or even after induction into camp.

2. Apply now. It is probable that if you ask to be sent to the Medical Officers' Training Camp at Fort Oglethorpe your request would be granted and you would then receive postgraduate military medical work, which will be of great service to you.

To the Editor:—1. I would like information as to how the medical men are classified in the selective draft regulations. 2. In what class would a man with three dependents be placed?

W. L. N., Minnesota.

ANSWER.—1. Medical men will be classified by the local and district appeal boards as are other registrants under the selective service regulations. No doubt special regulations for physicians will be promulgated by the Provost Marshal-General.

2. The local boards will no doubt consider the dependency of the physician in accordance with regulations to be issued by the Provost Marshal-General. See Current Comment, "The Selective Service Law and Physicians," this issue.

To the Editor:—1. I am 41 years old, graduated from the Atlanta Medical College, have a wife and two girl children—ages 17 and 9. I have not any money, property or source of income save my professional work. Is it my duty to join the Medical Reserve Corps, or to remain at home and make a living for my family? 2. Will the same rule concerning dependents apply to physicians as to other drafted men? C. A. J., Georgia.

ANSWER.—1. Unless you receive a commission before September 12, you must register. It will then be the duty of the selective service boards to determine your disposition under the selective service law, under the regulations to be issued by the Provost Marshal-General.

2. See answer to W. L. N., above.

To the Editor:—1. I am the only physician in this town, as the other two have gone. My age is 33 years. I have a large stone quarry where I do the surgical and accident work. What would you advise me to do? My patients are asking me not to join, but I want to do what is right. 2. When a man is drafted, will he have to work on a private's pay for six months? U. S. C., Illinois.

ANSWER.—1. Not knowing all the circumstances, we cannot advise. The selective service boards are empowered, under the law, to exempt those engaged in necessary occupations or employments, and will no doubt take the factors mentioned into consideration in determining your status.

2. A physician who is drafted is given an opportunity to apply for a commission, and if physically, morally and professionally qualified, a commission is issued to him.

VOLUNTEER MEDICAL SERVICE CORPS

To the Editor:—1. I write this letter for an explanation of a blank which I received from Washington to fill in on behalf of the Council of National Defense. It is a Volunteer Medical Service Corps application blank to be filled out by every doctor in the United States. Now, I am 59 years old, and unable to be of any service. If I volunteer, will I have to go at my age? 2. If I do not fill out the blank, what will be the consequences? D. P. L., Ohio.

ANSWER.—1. No.

2. If you do not fill out the application blank, you will not receive the button indicating that you are a member of the organization. That is all.

To the Editor:—Today I received an application blank for membership in the Volunteer Medical Service Corps from the Council of National Defense. I do not understand this thing and write for information. From this name "Volunteer" I would infer it was not compulsory, yet some of my physician friends seem to think it is and nearly all have signed it up and returned it. Is it compulsory and what is the penalty if one does not send it in? I have noticed no particulars in THE JOURNAL of the American Medical Association about it, and of course I am in the dark as to what to do.

M. S. F., Kansas.

ANSWER.—Membership in this society is not compulsory. See answer to W. E., below.

To the Editor:—There seems to be a considerable variation of opinion in regard to the Volunteer Medical Service Corps. Martin and his clement seem to be pushing things with a pretty high hand, with their committees, sub-committees, little buttons, regulations—everybody to register or sign up. We are at a loss to know what is right.

W. E., Michigan.

ANSWER.—The formation of a new and special organization for the purpose of enlisting physicians in war service has from the beginning seemed to THE JOURNAL unnecessary and unwise. The needs of the Army and Navy have been met promptly so far by voluntary enlistments, and there has been no indication that the needs of the future would not have been satisfied in the same way, even under the volunteer system. However, the passing of the new selective service law now renders such an indefinite and indeterminate society as the Volunteer Medical Service Corps superfluous and uncalled for. The vigorous promotion of this organization is creating a regrettable confusion and anxiety among physicians that should be avoided in these trying times. This is no time to fritter away energy in the construction and maintenance of intricate machinery of questionable value to do work which is being done and will be accomplished satisfactorily through regularly established channels.

Every man, including physicians, under 46 years of age, must register on September 12. The selective service boards are the only bodies empowered to dispose of those registered under the law. This will be done under the regulations promulgated by the Provost Marshal-General. Undoubtedly special regulations for the guidance of those boards will be worked out by the Provost Marshal-General conferring with the Surgeon-Generals. So far as those above 46 years of age are concerned: They will have in the future, the same privilege of volunteering as they have had in the past. The operation of the new selective service law will, without doubt, take into account the needs of the civilian population while providing for the medical requirements of the government.

LITERATURE ON THE LIFE OF AMBROISE PARÉ

To the Editor:—Please inform me where I may obtain books on the life of Ambroise Paré. I have read of him and his works, but have never been able to obtain a book on his life.

A. I. LAWBAUGH, M.D., Larium, Mich.

ANSWER.—We may refer you to the following books:

Paglet, S.: Ambroise Paré and His Times, New York, G. P. Putnam's Sons.

Andrews, J. G.: Ambroise Paré and His Times, *Med. Press and Circular*, 1900, p. 107.

Cumston, C. G.: A Brief résumé of the Life and Work of Ambroise Paré, *Boston Med. and Surg. Jour.*, 1901, **145**, 395.

Buck, A. H.: Growth of Medicine, Yale University Press. One chapter is devoted to Paré.

LITERATURE ON DIETETICS

To the Editor:—Kindly advise me as to the latest books on dietetics, especially as applied to sanatoriums.

E. C. DAVIS, M.D., Puposky, Minn.

ANSWER.—See "Literature on Diet and Nutrition," Queries and Minor Notes, THE JOURNAL, Sept. 8, 1917, p. 843.

NO LICENSURE WITHOUT PASSING A STATE BOARD EXAMINATION

To the Editor: Will a physician who has entered the Army in the Medical Reserve Corps be given a license to practice medicine or surgery in the United States without having passed the state board examinations? Please omit my name. J. C.

ANSWER.—No.

Observation.—Men become more keen and appreciative in proportion to the individual opportunities they receive, and the more they are encouraged to observe for themselves the greater becomes the value of their effort.—F. M. Caird.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Arizona: Phoenix, Oct. 1. Sec., Dr. Allen H. Williams, 219 Goodrich Bldg., Phoenix.

California: Sacramento, Oct. 21-24. Sec., Dr. C. B. Pinkham, Butler Bldg., San Francisco.

Colorado: Denver, Oct. 1. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

District of Columbia: Washington, Oct. 8. Sec., Dr. Edgar P. Copeland, The Rockingham, Washington.

Georgia: Atlanta, Oct. 8-9. Sec., Dr. C. T. Nolan, Marietta.

Hawaii: Honolulu, Sept. 9-13. Pres. R. W. Benz, 1141 Alakea St., Honolulu.

Idaho: Boise, Oct. 1-2. Sec., Dr. Ray H. Fisher, Rigby.

Illinois: Chicago, Sept. 24-27. Mr. F. C. Dodds, Supt. of Registration, Springfield.

Iowa: Des Moines, Sept. 10-12. Sec., Dr. G. H. Sumner, Capitol Bldg., Des Moines.

Kansas: Topeka, Oct. 8-9. Sec., Dr. H. A. Dykes, Lebanon.

Massachusetts: Boston, Sept. 10-12. Sec., Dr. W. P. Bowers, Room 501-1 Beacon St., Boston.

Michigan: Lansing, Oct. 8-10. Sec., Dr. B. D. Harison, 504 Washington Arcade, Detroit.

Minnesota: Minneapolis, Oct. 1-4. Sec., Dr. T. McDavitt, 741 Lowry Bldg., St. Paul.

Missouri: Kansas City, Sept. 30-Oct. 2. Sec., Dr. George H. Jones, State House, Jefferson City.

Montana: Helena, Oct. 1. Sec., Dr. S. A. Cooney, Power Bldg., Helena.

New Jersey: Trenton, Oct. 15. Sec., Dr. Alex. MacAlester, 438 E. State St., Trenton.

New Mexico: Sante Fe, Oct. 14. Sec., W. E. Kaser, East Las Vegas.

New York: Albany, Buffalo, New York and Syracuse, Sept. 24-27. Mr. H. J. Hamilton, New York Dept. of Education, Albany.

Oklahoma: Oklahoma City, Oct. 8-9. Sec., Dr. J. J. Williams, Weatherford.

Rhode Island: Providence, Oct. 3. Sec., Dr. B. U. Richards, 315 State House, Providence.

Utah: Salt Lake City, Oct. 7-8. Sec., Dr. G. F. Harding, 405 Templeton Bldg., Salt Lake City.

Florida June Examination

Dr. W. M. Rowlett, secretary of the Florida Board of Medical Examiners, reports the written examination held at Jacksonville, June 17-18, 1918. The examination covered 7 subjects and included 70 questions. An average of 75 per cent. was required to pass. Of the 15 candidates examined, 10 passed and 5 failed. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Columbian University	(1902)	86.3
State University of Iowa College of Medicine	(1901)	92.3
Tulane University	(1918)	93
Baltimore Medical College	(1905)	75
Johns Hopkins University	(1918)	90.9
Maryland Medical College	(1901)	79.7
University of Maryland	(1902)	89.5
Medical College of Ohio	(1880)	75
Chattanooga Medical College	(1908)	76
University College of Medicine	(1903)	90.5

FAILED

College	Year Grad.	Per Cent.
University of Arkansas	(1907)	55.6
University of Georgia	(1912)	66
Long Island College Hospital	(1887)	62.7
Meharry Medical College	(1914)	71.4
University of Nashville	(1894)	56

Iowa June Examination

Dr. G. H. Sumner, secretary of the Iowa State Board of Medical Examiners, reports the written examination held at Iowa City, June 6-8, 1918. The examination covered 8 subjects and included 100 questions. An average of 75 per cent. was required to pass. Thirty-three candidates were examined, all of whom passed. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Rush Medical College	(1917)	88
State University of Iowa College of Medicine	(1918)	82.9, 83, 86.1, 86.9, 88.1, 89, 89.1, 89.2, 90.1, 90.5, 90.7, 90.9, 91, 91.1, 91.2, 91.5, 91.6, 91.9, 91.9, 92.5, 92.5, 92.6, 92.7, 93.1, 93.1, 93.6, 93.9.
State University of Iowa College of Homeopathic Medicine	(1918)	81, 86.4, 88.9.
Washington University	(1918)	90
University of Pennsylvania	(1918)	92.7

Michigan May-June Examination

Dr. B. D. Harison, secretary of the Michigan State Board of Registration in Medicine, reports the written examination held at Detroit, May 30-June 1, 1918. The examination covered 14 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 22 candidates examined, 19 passed and 3 failed. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Tufts College Medical School	(1918)	87.7
Detroit College of Medicine and Surgery	(1918)	78.6, 79.2, 79.4, 79.8, 80.2, 80.5, 82.2, 82.5, 82.6, 82.9, 83.1, 83.6, 84.2, 85.1, 85.4, 86.5, 86.5.
Western University	(1916)	80.4

FAILED

College	Year Grad.	Per Cent.
Detroit College of Medicine and Surgery	(1918)	

* Three candidates were conditioned in one subject.

Missouri June Examination

Dr. George H. Jones, secretary of the Missouri State Board of Health, reports the written examination held at St. Louis, June 17-19, 1918. The examination covered 14 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 95 candidates examined, 79 passed and 16 failed. Nine candidates were licensed through reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Howard University	(1917)	81.1
Loyola University	(1917)	79.1
Northwestern University	(1918)	89.3
University of Kansas	(1918)	81.2
Maryland Medical College	(1912)	75.1
American Medical College	(1895)	82.5
Barnes Medical College	(1906)	77.2
National University of Arts and Sciences	(1916)	76.4
St. Louis College of Phys. and Surg.	(1917)	75.1
	(1918)	75.1, 75.8, 76.1, 79.5, 80.2, 81.7, 82.1, 84.2.
St. Louis University	(1918)	77.8, 78.1, 79.1, 79.1, 79.8, 80.1, 80.4, 81.1, 81.1, 81.4, 81.9, 81.9, 82, 82.1, 82.2, 82.2, 82.4, 82.5, 82.6, 82.7, 82.8, 83, 83.1, 83.1, 83.1, 83.1, 83.3, 83.3, 83.5, 83.6, 84.3, 84.4, 84.8, 85.1, 85.4, 85.5, 86.1, 86.1, 86.1, 86.1, 86.5, 86.7, 86.8, 86.8, 87.1, 87.9, 88.2, 89.3.
Washington University	(1900)	88.6;
	(1918)	80.3, 81.1, 81.6, 81.8, 82, 82, 84.1, 85.1, 85.5, 86.8, 87.1.
Meharry Medical College	(1918)	77.8, 82.1

FAILED

College	Year Grad.	Per Cent.
St. Louis College of Phys. and Surg.	(1917)	56.6
	(1918)	53.6, 60.2, 61.1, 66, 69.1, 71.1, 72.3, 73.1, 73.5.
Meharry Medical College	(1916)	60.7, 67.1, 70.1;
	(1917)	58.9, 60.9, 61.4

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Chicago College of Med. and Surg.	(1916)	Illinois
Loyola University	(1916)	Illinois
Kansas Medical College	(1905)	Kansas
Louisville National Medical College	(1906)	Kansas
Cornell University	(1910)	Illinois
Meharry Medical College	(1913) (1914) (1917)	Tennessee
McGill University	(1897)	Kansas

New Hampshire June Examination

Dr. W. T. Crosby, secretary of the New Hampshire State Medical Board, reports the written examination held at Concord, June 24-26, 1918. The examination covered 12 subjects and included 60 questions. An average of 75 per cent. was required to pass. Of the 5 candidates who took the physician's and surgeon's examination, 3, including 1 osteopath, passed and 2, including 1 osteopath, failed. One candidate was licensed through reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Boston University	(1918)	79
Harvard University	(1918)	90

FAILED

College	Year Grad.	Per Cent.
McGill University	(1918)	70

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Tufts College Medical School	(1906)	Mass.

Vermont June Examination

Dr. W. Scott Nay, secretary of the Vermont State Board of Medical Registration, reports the oral, practical and written examination held at Burlington, June 10-12, 1918. The examination covered 12 subjects and included 120 questions. An average of 75 per cent. was required to pass. Eighteen candidates were examined, all of whom passed. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Jefferson Medical College	(1918)	91.3
University of Vermont	(1918)	80.1, 81.1, 84.1, 85.1, 85.4, 86.1, 87.2, 87.4, 88.3, 88.8, 89.1, 89.9, 90.2, 90.6, 90.9, 91.2.
McGill University	(1911)	83.2

Book Notices

The Action of Drugs. A Course of Elementary Lectures for Students of Pharmacy. By Torald Sollmann, M.D., Professor of Pharmacology and Materia Medica in the School of Medicine of Western Reserve University, Cleveland. Cloth. Price, $1.50. Pp. 213. Philadelphia: W. B. Saunders Company, 1917.

This book consists of a course of lectures given to senior pharmacy students. It is not intended to be a complete study of the subject, but merely to give the young pharmacist a concise survey of the modern conceptions and knowledge of drug action. The author naturally is under considerable difficulties in making the work concise and elementary, yet at the same time sufficiently complete and technical to be of value. Probably future revisions will add many things and omit others. Many statements are very didactic, and must be taken by the student with a realization of the fact that their author gives them an authoritative character. For example: "Calcium sulphide is sometimes used internally against boils. This has no rational foundation." "Calomel in large doses is often an efficient diuretic." "The action of digitalis enables the heart to compensate more or less perfectly for any valvular defects." Such statements are not adequate without explanation. Dr. Sollmann's book is perhaps the first book for pharmacists which concerns the actions of drugs. It is questionable whether any clear knowledge of the actions of drugs can be given to pharmaceutic students who have not the necessary basis of studies in anatomy, physiology and pathology.

Typhoid Fever Considered as a Problem of Scientific Medicine. By Frederick P. Gay, Professor of Pathology in the University of California. Cloth. Price, $2.50 net. Pp. 286. New York: The Macmillan Company, 1918.

In this book the author undertakes to deal with typhoid fever as a problem of scientific medicine rather than to handle it as a question solely of the clinic or of the laboratory. The point of view is broad and the treatment, on the whole, well balanced. The treatise illustrates one of the newer tendencies in American medicine, and, it is to be hoped, will prove a forerunner of other books on special topics which shall not only give critical surveys of the enormous mass of accumulated research, much of which may otherwise remain unassimilated and valueless, but shall also stimulate investigation by pointing out unsettled questions. Such books are sure to serve the cause of medical advancement.

As might be anticipated from the author's own work, the chapters on immunization, the practical aspects of vaccination, and vaccine and serum treatment are particularly full and discriminating. The chapter on the carrier condition and the section dealing with laboratory diagnosis of typhoid are also informed throughout by the author's own personal experience. Public health workers may wish to take exception to a few statements in the earlier part of the book, such as that on page 10 in which the author declares it will "be evident that all significant information concerning the nature of the disease itself and its method of dissemination, as well as all effective means that have been devised to prevent and cure it . . . have depended on laboratory data and are based on the recognition of the single bacterial causative factor." This statement appears to overlook the fact that much of the epidemiologic work on the relation of typhoid to sewage-contaminated drinking water has been carried out, and in the nature of the case must be carried out without ever finding or attempting to find the typhoid bacillus. The evidence that causes an investigator to attribute a typhoid epidemic to a particular milk supply does not, as a rule, depend on laboratory data. The author's comparison of European city typhoid rates with those obtaining in the United States is, of course, worth making (pages 17-19), but it is unfortunate that the figures are brought down only to the year 1913, and that the great improvement observed in this country in 1914, 1915 and 1916 is apparently overlooked. The figures for these years are easily accessible, and since the book bears the publisher's date of 1918, might presumably have been included. The typhoid rates for 1914-1917 stand very favorably in comparison with the European figures, and make the author's remarks on our "backwardness" seem a little antiquated at the present time. On page 7 the author appears to accept by implication the curious theory of Pettenkofer (not Pettenkoffer) that typhoid bacilli pass through a "ripening stage" in the soil! He also seems to endorse the hardly substantiated view that "epidemics caused by contaminated milk, when compared with those produced by contaminated water, are characterized by suddenness and violence of onset" (p. 65).

There are relatively few typographical errors. We have noted Baerthelin (for Baerthlein), page 35, and "paratyphsus" in the note on page 153. The author's style is in general clear and straightforward. There are few sentences like the one on page 50, beginning: "The possibility of other insects serving as transmitters of typhoid is rendered possible . . .". The book has a good bibliography, but unfortunately no index.

The Human Mechanism Its Physiology and Hygiene and the Sanitation of Its Surroundings. By Theodore Hough, Professor of Physiology, University of Virginia, and William T. Sedgwick, Professor of Biology and Public Health, Massachusetts Institute of Technology. Revised edition. Cloth. Price, $2. Pp. 572 with 167 illustrations. Boston: Ginn & Co., 1918.

This edition of a well known book can be heartily recommended as a textbook for college students, nurses, or any layman desiring to inform himself in a general way concerning the structure and function of the various elements of the human body and its hygiene. The teacher can easily amplify the subject covered by the text and correct such minor mistakes as appear here and there. The book is simple in outline, lucid in presentation, and accurate in fact. Relieved from the responsibility of treating any one subject in much detail, the authors have succeeded in presenting to the general reader and student the workings of the human mechanism as a whole and its care. It contains all the general information which many educated persons need but do not have. Though not primarily intended for the home, the book ought to be in the library of every family at all concerned about the health and care of its members. The text is some twenty pages longer than in the previous edition. Some new illustrations have been added. The two parts of the book are also issued separately as "Elements of Physiology," and "Hygiene and Sanitation."

Syphilis and Public Health. By Edward B. Vedder, A.M., M.D., Lieut.-Col., Medical Corps, U. S. Army. Published by Permission of the Surgeon-General, U. S. Army. Cloth. Price, $2.25. Pp. 315. Philadelphia: Lea and Febiger, 1918.

The increased interest in the prevention of venereal diseases as a war measure has produced numerous books on the subject. Colonel Vedder's book differs from most of those available in that it is addressed primarily to the medical profession and is based on practical knowledge of Army procedures. In an appendix the author includes the technic of the Wassermann reaction and the Australian law, on which so many of our present laws for the control of venereal diseases are being modeled.

Amputation Stumps: Their Care and After Treatment. By G. Martin Huggins, F.R.C.S., Medical Officer to the Government Schools, Salisbury, Rhodesia. Cloth. Price, $2.75. Pp. 228, with 95 illustrations. New York: Oxford University Press, 1918.

The author states that he was responsible for the treatment of some 3,000 amputation cases during the past year. He describes the original operation, and discusses corrective measures and the fitting of adequate artificial limbs. The book covers the subject fully, and presents illustrations from actual cases. As a record of a large personal experience the book deserves consideration in the forming of any conclusions as to the disposition of military casualties in which amputation has been performed.

Milk as a Food.—A quart of milk is equivalent in fuel value to a pound of lean meat, or eight eggs. It is, therefore, a very much cheaper source of fuel than either one of these foods. —*Good Health.*

Social Medicine, Medical Economics and Miscellany

Experiences with Rehabilitation of the War Maimed in Germany

The *Hospitalstidende* gives a report on a special meeting in connection with the exhibition of artificial limbs and other prostheses at Berlin recently. Beckmann had been investigating factories, mines, etc., to ascertain to what extent the war maimed were being utilized as workers. Comparatively few of the severely disabled were found in the ranks of workers, very few, that is, of those with disability estimated at 50 per cent. It was estimated that the work they would be able to do would be the equivalent of about one-third of what a normal workman would produce, but experience has shown that their output averages two-thirds. Still more favorable are the conditions in certain forms of work for which the war maimed readily adapt themselves, as for instance the fireworks factory at Spandau, where they turned out the equivalent of 94 per cent.

On the basis of his investigations, he urged rehabilitation centers in every large province, so that the training could begin while the man is still taking treatment, and a place in some workshop could be found for him. The branches of work must be selected which call least on the injured limb, but the selection should be preceded by a period of work among his comrades in order to determine the special capacity in each case. Dr. Rodike stated that the war maimed agricultural workers who own a farm or whose parents own one, regularly return to agricultural life. But about 50 per cent. of the farm hands have taken up other vocations, and it is somewhat difficult to find other positions for them. Hartmann commented on the difficulties in training men in handicrafts, as this requires more all-around training than is customary in industries where work is distributed and only one small part falls to one workman.

Another disadvantage of teaching a handicraft is that the men have to bring their materials to the workroom, and sometimes this is quite a load. Besides this, the teacher is seldom able to devote much time to any one of the men at a time, so that the disabled men have to work alone too much. Men who have lost a leg are much better off than after amputation of the upper arm. On the whole, he said, the hope of training the disabled men in handicrafts has had to be largely abandoned. In mining, the war maimed can scarcely be used, and the mining officials are against employing them. Dr. Wullstein protested against the assumption that the man must always return to his former trade or one closely allied to it. Unskilled workmen can be trained to be skilled, and they can select their own trade thereafter. For example, a man amputated at the shoulder can be trained to be a clerk in a store, a telephone operator, a meter inspector. The state and the community should look out for these war maimed. It is particularly advantageous to have the one-armed men trained by a one-armed man in the rehabilitation centers. Schlesinger remarked that it depended mainly on the man's physical capacity and his intelligence.

The speakers that followed denounced Dr. Wullstein's suggestion, declaring that nothing must be allowed to interfere with the general principle of restoring the man to his former trade or to one closely allied. The well paid industrial worker, for instance, should not like it at all to be placed in some poorly paid subordinate municipal or state position. In Austria the plan has been adopted to appoint the postmen from the list of one-armed war maimed. H. Scheuermann, who reports the meeting for the *Hospitalstidende,* remarks that the consensus of opinion seems to be that the war maimed as a rule cannot count on remunerative positions, but in certain branches of industry, and in running certain machines, adapted to the use of the maimed, they may do as well almost as the normal worker.

Medicolegal

Why New Trial was Denied in Malpractice Case

(*Campbell v. Peters (Me.), 102 Atl. R. 881*).

The Supreme Judicial Court of Maine, in overruling a motion made in behalf of the defendant for a new trial, after the plaintiff had obtained a verdict for some sum not stated by the court, says briefly that this was an action brought by the plaintiff against the defendant for alleged malpractice in the performance of a surgical operation. The case came up on motion for a new trial on both the ground of liability and the damages awarded. On the question of liability arose the usual conflict of testimony between medical men when called to testify on the one side and the other of a medical or surgical case. The jury found for the plaintiff on this issue, and its verdict, if accorded the benefit of the well-established rules of law, should not be disturbed. Nor does the court think, under the testimony, that it would be warranted in cutting down the amount of the verdict. The jury is as much a part of the judicial system, under the constitution and laws, as the presiding justice or the law court. While this court might have a different judgment from the jury in a case, it is not authorized to substitute its judgment for the jury's, when the jury has exercised a judgment not so inconsistent with the most favorable interpretation the evidence will bear as to indicate bias, prejudice or improper influence.

Federal Court Follows State on Hospital Liability

(*Paterlini et ux. v. Memorial Hospital Association of Monongahela City, Pa., et al. (U. S.), 247 Fed. R. 639*)

The United States Circuit Court of Appeals, Third Circuit, which affirms a judgment for the defendants, says that this action was brought against an incorporated hospital and its directors individually, by the parents of a boy who died while a patient in the hospital, to recover damages for negligence alleged to have caused his death. The jurisdiction of the court was based on diversity of citizenship, the plaintiffs being citizens of Italy, and the defendants citizens of Pennsylvania. The proofs showed that a ward student nurse had occasion to administer a cathartic of Epsom salt to the boy. Finding no salts in the customary place, she, in violation of the rules, went across two corridors to the dressing room, which connected with the surgical room, where were two 1-gallon bottles, one labeled, "Bichloride, Poison," and the other, "Solution of Salts." She put her tray on a table, and when she went to get her glass reached at the same time for the bottle and picked up the wrong one. The proofs showed further that the executive work of the hospital was in charge of experienced and capable people, and there was an entire absence of any proof showing an act of commission or omission on the part of the directors, or on the part of any executive officer of the hospital. In the absence of such proof, it is clear that the court was justified, and indeed it was its duty, to charge the jury that there was no proof that justified a verdict against the directors personally or against the hospital for negligence on the part of its executive officers.

Nor does the court think that the hospital should be held liable for the negligence of the student nurse. The corporation being created by the state of Pennsylvania, being supported by charitable contributions of its citizens and by appropriations by that state, and the charitable uses and trusts which such a corporation administers being subjects over which the courts of that state are given statutory jurisdiction, the case would seem especially one in which a federal court would from comity, if for no other reason, incline to follow the settled law of Pennsylvania if such a law was found to exist; and the settled law of Pennsylvania is such that a plaintiff in a case like this would have no ground on which to support a case in a court of that state. Why should the fact that he is a nonresident of that state, and therefore with less claim on its public charities than its own citizens, enable him, by going into a federal court, to obtain a judgment which would be denied to a citizen of Pennsylvania? The jurisdiction of the federal court given to nonresidents against citizens of the local state is to insure an impartial trial, not to create rights of action which citizens of the state, in like condition, do not have. It was urged that this court should not follow the Pennsylvania cases, because, as was alleged, they were not based on sound principles. But the simple fact is that if liability by a hospital, to a patient, for the negligence of a nurse exists, it is one imposed by law and is not created by contract. The Pennsylvania courts charged with the responsibility of imposing or not imposing liability, and having the wide field of encouraging, as well as of beneficially administering, charitable trusts, held that they would not impose liability on the part of the trust to a beneficiary for the negligent act of an employee or agent in administering its benefits. Whatever the reasoning process by which it is reached, the conclusion commends itself to this court. This court sees no reason why it should depart from, and every reason why it should abide by, the ruling of the Pennsylvania courts.

Duty of Railroad Companies When Employees Are Injured

(Troutman's Administratrix v. Louisville & N. R. Co. (Ky.), 200 S. W. R. 488)

The Court of Appeals of Kentucky says that it was a new question for that state which was presented by this case as to the legal duty of a railroad company to furnish medical aid and suitable attention to its employees who are injured in the course of their employment. The court holds that, when an employee of a railroad company is injured while attempting to perform some service within the scope of his employment, whether his injuries are due to his own want of care or to the negligence of the railroad company, the company through its superior servants immediately in charge at the place where the accident occurs, such as the conductor in this instance, is under a duty to take such action as may be reasonably necessary and sufficient under all the surrounding circumstances to furnish the injured employee medical aid and attention suitable to the injury received, if there are no members of his family present who are capable of performing and do undertake to perform this service; and this duty exists although there may be no contract obligation requiring it or statute making it mandatory. The court does not, however, undertake to lay down any rule as to the length of time this care and attention must continue. It deems it sufficient here to say that the duty to observe it springs out of an emergency, and a variety of circumstances may control its duration. What a railroad company must do in the exercise of reasonable care to furnish medical aid and assistance to an injured employee must necessarily depend on the time, place, character of the injury and surrounding circumstances; but whatever the time, place or circumstances, the legal duty is there, and unless the company performs this duty, it may be required to respond in damages for its failure.

If, however, adult members of the family of the injured man are present when the accident occurs, or come to him before his removal by the company, or at any time thereafter, and express a desire to take charge of the injured employee, the servants of the railroad company present at the time should deliver over to them the care of the case and do what they advise. The wishes of the injured man, if he is capable of understanding the conditions, should also, of course, be respected, and such convenient and practicable arrangements made as he desires; in other words, the injured man and his family have the right to determine what course shall be pursued.

In this case, in which a judgment in favor of the defendant railroad company is affirmed, the evidence showed that the conductor, in his efforts to save the life of the injured man, exercised such care as a person of ordinary prudence would have exercised under like circumstances, and that the injured man, his wife and his friends all believed that it was best that he should be taken to the hospital at another station, as the conductor said should be done, and all in fact consented, tacitly at least, that he should be taken there. Under these circumstances to hold the company liable would be to penalize it for doing everything in its power to save the life of its injured employee.

Society Proceedings

COMING MEETINGS

Am. Assn. of Electro-Therapeutics and Radiology, Boston, Sept. 10-12.
Am. Assn. of Obstetricians and Gynecologists, Detroit, Sept. 16-18.
American Association of Railway Surgeons, Chicago, Oct. 16-18.
American Public Health Association, Chicago, Oct. 14-17.
Colorado State Medical Society, Estes Park, Sept. 9-11.
Delaware State Medical Society, Wilmington, Oct. 8.
Indiana State Medical Association, Indianapolis, Sept. 25-27.
Missouri Valley Medical Society, Omaha, Sept. 19-20.
New Mexico Medical Society, Albuquerque, Oct. 7-8.
Ohio State Medical Association, Columbus, Oct. 1-3.
Pennsylvania State Medical Society, Philadelphia, Sept. 23-26.
Utah State Medical Association, Salt Lake City, Sept. 10-11.
Vermont State Medical Society, Burlington, Oct. 10-11.
Virginia State Medical Society, Richmond, Oct. 22-25.
West Virginia State Medical Association, Harpers Ferry, Oct. 1-3.
Wisconsin State Medical Society, Milwaukee, Oct. 2-4.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

August, 1918, **16**, No. 2

1 Neuroblastoma Sympathicum; Report of Case. S. B. Wolbach and J. L. Morse, Boston.—p. 63.
2 Variations in Lipoid ("Fat") Content of Blood of Infants Under Certain Nutritional Conditions. W. McK. Marriott, St. Louis, and W. R. Sisson, Boston.—p. 75.
3 *Active Immunization of Infants Against Diphtheria. A. Zingher, New York.—p. 83.
4 Infantilism, with Two Cases of Brissand and Frölich Types, Respectively. J. P. C. Griffith, Philadelphia.—p. 103.
5 *Intrathecal Injection of Horse Serum in Treatment of Chorea. L. Porter, San Francisco.—p. 109.
6 Breath Holding in Infants. I. A. Abt, Chicago.—p. 118.
7 Balantidium Coli Infection; Report of Case in Child. L. R. DeBuys, New Orleans.—p. 123.

3. Active Immunization of Infants Against Diphtheria.—Zingher would have all infants below 12, and if possible below 18 months of age, actively immunized with three doses, each 10 c.c. of toxin-antitoxin. These injections should be given irrespective of the Schick test the infants may show at the time of immunization. The injections are given subcutaneously in the arm or below the angle of the scapula, and repeated every seven days. The toxin-antitoxin is well tolerated by young infants, and for that reason the dose advised is the same as that given to older children. The relatively larger dose of toxin-antitoxin will, of course, also give rise to a better immunizing response. All children over 18 months of age, as well as all youths and adults, should be tested with the Schick reaction first, and only those giving a positive reaction immunized with toxin-antitoxin. Three injections, each 10 c.c., are given subcutaneously, one week apart. In infants below 18 months of age the Schick test is not a necessary part of the immunization, since all the infants should be actively immunized. The toxin-antitoxin mixture should be prepared in a reliable laboratory and carefully tested for potency in the guinea-pig before it is sent out for use. The mixture used should be slightly toxic and should represent about 85 per cent. of a lethal plus to each unit of antitoxin. The active immunization against diphtheria should be carried out first of all by the private physicians in the different homes, where a majority of the infants can be reached. In larger centers of population the milk stations, day nurseries, children's dispensaries, infant and orphan asylums furnish large groups of children suitable for immunization. The children of preschool age found in kindergartens and those of school age should be tested first with the Schick reaction, and those giving a positive test actively immunized. Adults, especially those frequently or constantly exposed to diphtheria, such as physicians, nurses, hospital orderlies and patients in contagious disease hospitals, should also be tested with the Schick reaction and those giving a positive reaction actively immunized.

5. **Chorea Treated by Intrathecal Injection of Horse Serum.**—Intrathecal injections of horse serum have been instrumental in gaining striking and rapid improvement in most of the cases so treated by Porter, but no improvement has been such that a cure can be claimed on the basis of "absolute cessation of all twitching within a week." Only in the mild cases was twitching entirely absent after two weeks, and all three of these seven patients had been affected for at least three weeks before treatment was inaugurated. One patient, a girl (a mental defective with a neurotic heredity), showed absolutely no reaction to the injections of serum. The most striking results followed the use of the horse serum in the maniacal and very severe cases. Before the serum was used, two of these patients could be kept in bed only by the use of restraining packs, but within forty-eight hours after the first injections both were able to carry a cup to their mouths and to drink without any assistance from the nurse. The restraining pack was no longer necessary and there was a steady diminution in all the excessive movements, while the mental conditions, especially the emotional overflow, were markedly improved. By the end of the third week it was with difficulty that choreic movements could be brought out, but even then they could be elicited by allowing excessive excitement or persistent mental strain to affect the patient. Porter sums up his ideas on this subject by stating that on the whole the result obtained does not encourage the hope that this is any advance on other methods of treatment. Porter states that undoubtedly the use of horse serum is of great value in controlling the very severe cases, but one would not choose to use horse serum in the treatment of any moderately severe or mild case.

Boston Medical and Surgical Journal

August 8, 1918, **179**, No. 6

8 Physical Examination as Civil Service Instrument. A. F. Downing, Cambridge.—p. 181.
9 *Studies in Personality Among Feebleminded Delinquents Seen in Court. V. V. Anderson and C. M. Leonard, Boston.—p. 192.
10 Fracture of Long Bones; Clinical Study. F. Reder, St. Louis.—p. 197.

9. **Personality Among Feebleminded Delinquents.**—The object of this paper is to call attention to the value of certain facts other than the mere diagnosis of feeblemindedness that are distinctly worth while in the consideration of the case of a feebleminded delinquent in court. For this purpose 100 cases were chosen. These were all adult women, ranging in age from 17 to 55 years. The mental age of each of these persons was determined by means of the Yerkes-Bridges point scale and Goddard's revision of the Binet scale. The diagnosis of feeblemindedness was arrived at by the usual methods. Sixteen per cent. were undoubtedly self-supporting, steadily employed, and apparently gave satisfaction where they worked; 38 per cent., while more or less self-supporting, changed positions frequently, and worked irregularly; 35 per cent. never worked at all; while 11 per cent. did housework at home. Eighteen per cent. never used alcohol or drugs; 82 per cent. used alcohol, 5 per cent. used drugs as well as alcohol. Nineteen per cent. were moral, while 81 per cent. were undoubtedly immoral women. Twenty per cent. were first offenders, 80 per cent. were repeaters. Anderson and Leonard call attention to the fact that some feebleminded persons seem to get along fairly well under outside supervision, and do avoid serious social difficulties, and therefore are not necessarily—because they are feebleminded—vicious, incorrigible and irresponsible. However, the majority of feebleminded delinquents seen in court are institutional cases, and are incapable of measuring up to the social standards of the community in which they live.

California State Journal of Medicine, San Francisco

August, 1918, **16**, No. 8

11 Prevention of Blindness Work of State Industrial Accident Commission. W. J. French, San Francisco.—p. 377.
12 Plea for Complete Urologic Diagnosis at One Sitting. M. Krotoszyner and G. W. Hartman, San Francisco.—p. 378.
13 *Prevention of Congenital Syphilis by Antisyphilitic Prenatal Therapy. H. Lisser, San Francisco.—p. 384.
14 Results Following Operative Treatment of Pelvic Inflammatory Disease in Stanford University Clinic. J. A. Sperry, San Francisco.—p. 388.
15 Training of Fixation and Fusion in Strabismus. K. Pischel, San Francisco.—p. 391.

13. **Prevention of Congenital Syphilis by Antisyphilitic Prenatal Therapy.**—Most cases of congenital syphilis have been preceded by two or three miscarriages, premature births or stillborn children due to syphilis. Proper treatment of acquired syphilis before pregnancy will to a considerable extent diminish this waste, which can at best be only partially controlled. But intensive treatment of every syphilitic mother during her pregnancy will (*a*) prevent miscarriages, premature births, and stillbirths due to syphilis, in the vast majority of cases; (*b*) produce a live child at full term who will not develop congenital syphilis, in the majority of cases. Such treatment does not interfere with the normal course of pregnancy, labor or puerperium. Lisser urges that such antenatal therapy should be widely advocated by medical men of prominence and influence, in order that it may become a well established routine procedure. Immediate widespread adoption of this method will insure a large increase in the future population of the world.

Canadian Medical Association Journal, Toronto

August, 1918, **8**, No. 8

16 Psychogenetic Conditions in Soldiers, Their Etiology, Treatment and Final Disposal. C. K. Russel.—p. 673.
17 Chirurgico-Orthopedic Observations and Moral Treatment of Wounded Man. I. H. Cameron.—p. 685.
18 Surgery of Nerve Injury. H. Williams, London, Ont.—p. 693.
19 Rôle of Physiotherapy in Treatment of Returned Invalided Soldier. R. Wilson.—p. 700.
20 Industrial Rehabilitation. H. E. T. Haultain, Toronto.—p. 703.
21 Present Position of Vaccine Therapy. W. Boyd.—p. 706.
22 Public Health. T. J. Norman, Alberta.—p. 718.
23 Blindness of Newborn—Preventable Disease. G. G. Copeland, Toronto.—p. 724.

Cleveland Medical Journal

June, 1918, **17**, No. 6

24 Typhoid in Cleveland in 1917. M. E. Fulk and R. G. Perkins, Cleveland.—p. 359.
25 Simple Hematologic Methods and Diagnostic Significance of Findings. C. L. Cummer, Cleveland.—p. 373.

Florida Medical Association Journal, Jacksonville

June, 1918, **4**, No. 12

26 Our Needs in Medical Legislation. F. J. Walter, Daytona.—p. 354.
27 Eye from Standpoint of General Practitioner. M. P. DeBoe, Cocoa.—p. 357.
28 Autogenous Vaccines in Treatment of Diseases of Ear, Nose and Throat. H. H. Fox, Miami.—p. 360.
29 Qualifications of Examiner and Examination to Correct Defects of Sight. L. C. Ingram, DeLand.—p. 361.

Journal of Experimental Medicine, Baltimore

August, 1918, **28**, No. 2

30 *Experimental Trypanosomiasis; Its Application in Chemotherapeutic Investigations. L. Pearce and W. H. Brown, New York.—p. 109.
31 Studies in Bovine Mastitis. Nonhemolytic Streptococci in Inflammation of Udder. F. S. Jones, Princeton, N. J.—p. 149.
32 *Classification of Hemolytic Streptococci. R. A. Kinsella and H. F. Swift, New York.—p. 169.
33 *Relation Between Hemolytic and Nonhemolytic Streptococci and Its Possible Significance. R. A. Kinsella, New York.—p. 181.
34 *Renal Function in Experimental Hydronephrosis. R. A. Johnson, Minneapolis.—p. 193.
35 Proteose Intoxications and Injury of Body Protein. Toxic Protein Catabolism and Its Influence on Nonprotein Nitrogen Partition of Blood. G. H. Whipple and D. D. Van Slyke, New York.—p. 213.
36 Id.: Metabolism of Dogs with Sterile Abscess, Pancreatitis and Pleuritis. J. V. Cooke and G. H. Whipple, San Francisco.—p. 223.
37 Id.: Increase in Nonprotein Nitrogen of Blood in Acute Inflammatory Processes and Acute Intoxications. J. V. Cooke and G. H. Whipple. San Francisco.—p. 243.

30. **Experimental Trypanosomiasis.**—The authors endeavor to show that the use of experimental trypanosomiasis in chemotherapeutic experiments should be based on a clear

conception of the experimental disease as it occurs in laboratory animals and that the use of one or another of the experimental infections is not to be undertaken in a haphazard fashion but that there are definite principles on which the experiments may be based. In the first place, one must know the behavior of the various species of trypaosomes in the animal body, the character of the infection produced, and the response which may be expected from these organisms to the particular class of therapeutic agents to be employed, and further than this, one must know even the peculiarities of the particular strain to be used. It is of equal importance also that one should be familiar with the various factors which may influence these reactions and the means to be employed to insure constancy of reaction under all circumsctances. Finally, one should realize clearly that limitations to the usefulness of any particular form of the experimental infection or species of trypanosome as well as the limitations to deductions which may be drawn from all classes of experiments. In order to reproduce experimental conditions analogous to the natural infections of man and animals, Pearce and Brown have utilized the rabbit as the animal that most nearly fulfils the desired requirements. From this point of view, the results of treatment of chronic tissue infections are indicative of curative power or therapeutic potency as contrasted with trypanocidal action.

32. **Classification of Hemolytic Streptococci.**—Twenty-eight strains of streptococci of the hemolytic type from various pathologic sources were studied by Kinsella and Swift and their cultural characteristics, power to produce hemolysis of red cells, and behavior in the complement fixation reaction are reported. The chief conclusions as to variability are drawn from a consideration of the complement fixation reactions between these hemolytic strains and their corresponding antiserums. The several variations in fermentative activity noted by others were present in this series. The similarity between all the strains studied was strikingly emphasized by the complement fixation reactions. Although the strains came from different pathologic sources and displayed many superficial variations in cultural activity, judged by the complement fixation test all the strains were nearly identical.

33. **Hemolytic and Nonhemolytic Streptococci.**—Kinsella claims that the relation between hemolytic and nonhemolytic streptococci is orderly and arises from the fact that the former variety is unique while the latter is heterogeneous. Analogous considerations of the classification, distribution, and pathogenicity of the streptococcus group and the pneumococcus and colon typhoid groups show a definite parallelism. These considerations suggest that unique varieties of bacteria associated with man are the more highly invasive, while the heterogeneous varieties are more saprophytic.

34. **Renal Function in Experimental Hydronephrosis.**—The object of Johnson's investigation was the study of the function of kidneys in the early stages of experimental hydronephrosis by means of the phenolsulphonephthalein test of Rowntree and Geraghty. He found that complete obstruction of the ureter causes atrophy of the renal parenchyma, especially marked in the portions lateral to the renal sinus. The longer the duration of the obstruction, the greater is the degree of atrophy. If the obstruction is removed within two weeks the kidney may regain its normal structure except for a varying amount of atrophy in the lateral portions. Kidneys obstructed for two weeks or less may regain their normal function, as measured by the phenolsulphonephthalein test. The longer the period of obstruction, the slower is the rate of recovery. A hydronephrosis of seven days' duration required forty days, and one of fourteen days' duration required 152 days to recover normal function.

Journal of Infectious Diseases, Chicago

August, 1918, 23, No. 2

38 Life Phases in Bacterial Culture. R. E. Buchanan, Ames, Iowa. —p. 109.
39 *Repeated Agglutination Tests by Dreyer Method in Diagnosis of Enteric Fever in Inoculated Percons. E. B. Krumbhaar and W. B. Smith, France.—p. 126.
40 *Antigenic Properties of Gelatin. W. A. Starin, Columbus, Ohio. —p. 139.
41 *Effect of Exposure to Cold on Antibody Production. A. G. Foord, Chicago.—p. 159.
42 Hormone Medium. Simple Medium Employable as Substitute for Serum Medium. F. M. Huntoon.—p. 169.
43 *Influence of Incubation on Wassermann Reaction. E. H. Ruediger, Bismarck, N. D.—p. 173.
44 *Streptothrix Isolated from Blood of Patient Bitten by Weasel (Streptothrix Putorii). G. F. Dick and R. Tunnicliff, Chicago. —p. 183.
45 Simultaneous Acid and Alkaline Bacterial Fermentations from Dextrose and Salts of Organic Acids Respectively. S. H. Ayers and P. Rupp, Washington, D. C.—p. 188.

39. **Agglutination in Persons Inoculated Against Typhoid.**—Krumbhaar and Smith maintain that the diagnosis of fevers of the enteric group may be made by agglutination tests in many cases when cultures have been negative, but the test should never be used as a substitute for cultures. In inoculated individuals the diagnosis may be made by quantitative agglutination tests, if three or more tests are made at suitable intervals and the resulting curve interpreted in the light of the inoculation and clinical data and the date of onset of the disease. The Dreyer macroscopic method used with standardized agglutinable cultures not only gives excellent results, but allows comparison to be made of results obtained at different times in different laboratories. These results should be expressed in agglutinin units. For proper comparison, every step in the method should be standardized. Distilled water should be uniformly used as a diluent, and that readings should always be made with a hand glass (4 diameters) in the illumination advised by the Oxford Standard Laboratory. If standard agglutinable cultures are used, they should be carefully guarded against contamination. If contamination occurs, especially if they have become acid, they should be at once discarded. The authors present figures showing the gradual fall in T. A. B. agglutinins in forty inoculated individuals. If the presence of agglutinins may be taken as an index of protection, these and similar tests show that the methods of prophylactic inoculation now in vogue protect the average individual for more than a year. There is, however, considerable variation in the individual response, and apparently also in batches of vaccine. Figures are also given to show that paratyphoid B inoculation in persons who have already received typhoid and paratyphoid A vaccine, causes a distinct rise in the typhoid agglutinin curve. A single experiment is given which tends to show that as compared with the American method now in vogue, more efficient prophylactic inoculation may be obtained by giving two (or possibly even single) doses at more frequent intervals.

40. **Antigenic Properties of Gelatin.**—A study made by Starin of the results of anaphylactic, precipitin, complement-binding, and meiostagmin reactions, shows that all were constantly negative, with gelatin as an antigen, in rabbits, guinea-pigs, and dogs, the recipients of the injections.

41. **Effect of Cold on Antibody Production.**—Chilling rabbits twice a day during the period of immunization for periods of seven to ten minutes in water at 8 C. did not cause any change in the hemolysin production for sheep corpuscles, and a single chilling seventeen to twenty-nine days after the period of immunization failed to change the hemolysin content of the serum. Chilling rabbits thoroughly during the period of immunization caused a moderate increase in agglutinin production for *B. typhosus*. Chilling once fifteen days after the period of immunization caused an increase in the agglutinin content of the serum, which increase persisted for twenty-four hours. Cold baths in ice water at 0 C. for one to ten minutes failed to cause hemorrhages or thrombosis in the lungs of rabbits.

43. **Incubation and Wassermann Reaction.**—Ruediger presents the results he obtained with the Wassermann reaction under different incubation conditions. Only one antigen was employed, and the only difference there was, was in incubation time and method. He found that complement binding is better in the incubator at a temperature of 37 C. than in the open water bath at the same temperature. Complement binding takes place gradually, many hours being required for its completion. Complement binding is much better at a temperature of 10 C. than at a temperature of 37 C. or of 21 C.

Ruediger suggests that perhaps the optimum temperature for complement binding and the length of time necessary for its completion in the Wassermann reation have not yet been determined.

44. **Streptothrix Putorii.**—The clinical picture in the case studied by Dick and Tunnicliff was similar to that of a rat-bite fever, but the streptothrix isolated from the blood differs both morphologically and culturally from the organism associated with that disease, *Streptothrix muris-ratti.*

Journal of Nervous and Mental Disease, Lancaster, Pa.

July, 1918, **48**, No. 1

46 Certain Pluriglandular Anomalous Functions Associated with Psychopathic Sexual Interests. M. O'Malley, Washington, D. C.—p. 1.

47 Analysis of Action of Morphin on Vegetative Nervous System of Man. W. M. Kraus, New York.—p. 36.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

July, 1918, **11**, No. 6

48 *Relation Between Chemical Structure of Opium Alkaloids and Their Physiologic Action on Smooth Muscle. Pharmacologic and Therapeutic Study of Some Benzyl Esters. D. L. Macht, Baltimore.—p. 419.

49 Toxicity of Venom of Mexican (Durango) Scorpion as Compared with that of Chinese Scorpion. S. Kubota, Baltimore.—p. 447.

48. **Pharmacologic Study of Benzyl Esters.**—A pharmacologic study of the benzyl esters, benzyl benzoate and benzyl acetate, showed that these esters produce the same effects on smooth muscle tissues as the opium alkaloid papaverin. Benzyl benzoate and benzyl acetate are easily metabolized by the body and are comparatively nontoxic. The low toxicity and the papaverin-like action of the benzyl esters on smooth muscle has led to their clinical employment in conditions of excessive peristalsis or spasm of smooth muscle viscera, with successful results.

Medical Record, New York

August 17, 1918, **94**, No. 7

50 Treatment of Duodenal Ulcer. G. R. Satterlee, New York.—p. 265.

51 Treatment of Intestinal Stasis by Duodenal Lavage. C. D. Aaron, Detroit.—p. 268.

52 Serum and Vaccine Treatment of Pneumonias. F. E. Stewart, Philadelphia.—p. 270.

53 Acute Intestinal Obstruction. J. M. Lynch and J. W. Draper, New York.—p. 274.

54 Variable Hyperopic Astigmatism in Children and Its Correction. E. S. McClelland, Los Angeles.—p. 276.

55 Rabelais' Mention of Parts of Human Skeleton. D. W. Montgomery, San Francisco.—p. 279.

56 Homigrade Thermometer. F. E. Aspinwall, La Grange, Ky.—p. 281.

Military Surgeon, Washington, D. C.

August, 1918, **43**, No. 2

57 How United States Is Meeting Tuberculosis War Problem. G. E. Bushnell.—p. 127.

58 *Tuberculosis as Army Problem. L. Brown and J. H. Pratt.—p. 139.

59 Statistical Review of Pulmonary and Cardiovascular Defects Found in 82d Division, U. S. National Army, Camp Gordon; Report on After-Results in Five Hundred Measles Cases. A. P. Francine.—p. 160.

60 Venereal Disease Problem at Camp Bowie, Fort Worth, Texas. R. F. Metcalfe.—p. 174.

61 Radical Treatment of Local Venereal Diseases by Cauterization and Circumcision. G. L. Qualls.—p. 179.

62 Plan for Better Handling of Venereal Diseases in Army. L. Thompson.—p. 184.

63 Work of Urologic and Venereal Service of Base Hospital, Camp Lewis, American Lake, Wash. A. H. Peacock.—p. 187.

64 Painful Abdominal Scars. E. P. Quain and C. Eggers.—p. 195.

65 English Orthopedic Hospital for Treatment of Chronic Disabled Soldiers and Sailors. C. M. Allaben.—p. 200.

58. **Tuberculosis as Army Problem.**—Brown and Pratt urge that the men should be examined sooner after their arrival at camp, and that twenty-five men should be sent to the examining boards every half hour, supplied with clean handkerchiefs and, if questionnaires be used, with pencils. The questionnaires are valuable in the tuberculosis examinations for several reasons—they suggest a more careful examination when questions have been answered affirmatively; they are a check on the men examined; they saved time as the man, transferred from board to board, had always his record with him; and, finally, they kept together all records and examinations made of each man and could be returned to the original board. The authors praise Bushnell's rapid auscultatory method in tuberculosis examination in the Army, and suggest: (*a*) That on the rapid examination, all suspicious cases should be kept for reexamination until the quota for the morning or afternoon be finished. (*b*) That day in and day out, morning and afternoon, the most suitable number of examinations proved to be about forty for each examiner (eighty a day), and this could for a time be increased to fifty. (*c*) That fuller description of the examinations required should be furnished the examiners and should include instructions somewhat as follows: (1) Use auscultation only in first rapid examination. (2) Listen to the breathing in four or five places at least on each side, front and back, before using the auscultatory cough. (3) Use the auscultatory cough whether the breathing is normal or abnormal (Circular No. 20 does not make this clear). (4) Any man with râles detected by two members of the board should be referred to the tuberculosis specialist for study. (5) Attention should be called to the fact that, as Laennac has pointed out, too hard coughing obscures rather than helps the detection of râles.

The authors recommend that the entire board meet weekly with the roentgenologist and tuberculosis specialist to consider the cases referred to the tuberculosis specialist and by him accepted or rejected. At such conferences difficulties can be discussed and the workers greatly stimulated. It is suggested that the examiners be urged to check up their physical examinations with the roentgen ray, but that they should recall that a negative roentgenogram especially a flat plate, does not exclude the presence of pulmonary tuberculosis. However, such instances are of rare occurrence. The authors would urge that a ward be set aside in the base hospital in each camp for the study of men suspected of pulmonary tuberculosis, and it be equipped with scales and with a measuring rod. It is further recommended that the tuberculosis wards in the base hospital be used for the instruction in the art of diagnosis of pulmonary tuberculosis of all ward surgeons and other men on the medical staff, as well as all regimental surgeons, who are not proficient in this work. Colonel Bushnell's efforts to teach this to the Medical Corps of the Army are praised highly.

Brown and Pratt also recommend that careful records of the work of each member of the board should be kept and checked up from time to time, in order to eliminate from the board careless and inefficient men. The members of the tuberculosis disability board should be men who have had experience in dealing with pulmonary tuberculosis, and, if at all possible, men who have seen pulmonary tuberculosis in the Army. The president of the tuberculosis board should see that his assistants use the same terminology, that suggested by Colonel Bushnell. The differentiation of the types of râles is most important. To obtain the best results, the tuberculosis board should work in harmony with the division, brigade and regimental officers, realizing the great strain under which they, too, labor. Greater provision should be made for the future disposition of the tuberculous soldier, when he has been in camp over two months. Even with great care, certain cases will develop tuberculosis when least expected. More sputum examinations should be made, even when the sputum is not collected under surveillance. If positive, the man should be admitted to the base hospital and several sputum specimens, collected under observation, examined. On each man's discharge card or blank should be noted the reasons for his discharge and, if due to pulmonary disease, the location of such disease and the fact whether or not tubercle bacilli have been found.

Minnesota Medicine, St. Paul

August, 1918, **1**, No. 8

66 Diagnosis and Treatment of Brain Injuries with or without Fracture of Skull. W. Sharpe, New York.—p. 285.

67 Diagnosis and Treatment of Tuberculous Arthritis of Hip Joint. H. W. Meyerding, Rochester.—p. 291.

68 Some Rare Pathologic Conditions of Appendix; Report of Cases. G. A. Geist, St. Paul.—p. 295.
69 Essentials in Pediatric Diagnosis. G. E. Zimmerman, Sioux Falls, S. D.—p. 298.
70 One Thousand Consecutive Cases of Confinement. F. H. Knickerbocker, Staples.—p. 303.

New York Medical Journal

August 17, 1918, **108**, No. 7

71 Righthandedness in Its Relation to Visual Conditions. G. T. Stevens, New York.—p. 269.
72 Blood and Soul. J. Wright, Pleasantville.—p. 271.
73 Congenital Syphilis and Physician. J. M. Wallfield, New York. —p. 277.
74 Preventive Treatment of Bone and Joint Maladies. F. Pridham, Baltimore.—p. 279.
75 Thyroid Gland. L. J. Simonton, Cumberland Valley, Pa.—p. 281.
76 Heart in Pulmonary Tuberculosis. H. Schwatt, New York.—p. 282.
77 Immunization Therapy in Bronchial Asthma. A. I. Rubenstone, Philadelphia.—p. 285.
78 Prevention vs. Treatment in Tuberculous Laryngitis. M. Lubman, New York.—p. 287.
79 Reconstructive Therapeutics. J. M. Taylor, Philadelphia.—p. 289.

New York State Journal of Medicine

August, 1918, **18**, No. 8

80 *Ophthalmic Changes in Tabes and Paresis. I. S. Wechsler, New York.—p. 304.
81 Epidemiology of Contagious Diseases of Eye. M. Cohen and H. Noguchi, New York.—p. 313.
82 Diarrheal Diseases of Infancy. R. Sloan, Utica.—p. 317.
83 *Intestinal Intoxication in Infants. O. M. Schloss, New York. —p. 324.
84 *Complement Fixation with Specific Antigen in Acute Poliomyelitis. M. Neustaedter, New York.—p. 328.
85 Early History of Infantile Paralysis. L. C. Ager, Brooklyn. —p. 330.
86 Chemical Examination of Blood and Urine in Normal Pregnancy and in Toxemia of Pregnancy. J. R. Losee, New York.—p. 333.

80. **Changes in Tabes and Paresis.**—From the study of the more recent investigations of the pathology of neurosyphilis, particularly with reference to optic changes, Wechsler has gained the impression that there is no fundamental difference between tabetic neurosyphilis and so-called cerebrospinal or, better, diffuse neurosyphilis. It seems evident that an inflammatory process is behind every form of syphilitic involvement and that the spirochete is at the bottom of the reaction. Obviously, the inflammatory reaction is in direct proportion to the kind of tissue involved. There is every reason why the meninges should respond more violently than the parenchyma of the brain. The reaction, too, of vascular, interstitial structures will be of a different nature than that of parenchymatous tissue. But lymph and plasma cell infiltration and mast cells are the fundamental characteristics of syphilis. This picture occurs in tabes, paresis and optic atrophy, just as it does in interstitial neurosyphilis or, say, aortitis. There is, therefore, no valid reason for calling a protean clinical picture cerebrospinal syphilis. In the first place, tabes and paresis are anatomically just as cerebral and spinal, and secondly, the pathology is based in all cases on a similar reaction to the same agent. Wechsler uses the term interstitial, or diffuse, neurosyphilis instead of cerebrospinal syphilis. Very careful examination of the optic nerve has revealed inflammatory reactions, even in very old cases of optic atrophy. Wechsler believes that it would be advisable therefore to drop the term primary optic atrophy or, rather, employ it in the sense that the atrophy takes place *pari passu* with the inflammatory, exudative process. It is equally descending with an inflammatory neuritis, though the vascular changes are not nearly so violent. Wechsler suggests that if the inflammatory character of optic atrophy will come to be recognized, it may be possible to attempt rational and possibly hopeful treatment in cases which have hitherto been the despair of therapeutics.

83. **Intestinal Intoxication in Infants.**—If the patient is not vomiting and the diarrhea is not severe, Schloss gives sodium bicarbonate by mouth in 3 to 5 per cent. solution. Milder grades of acidosis may be corrected in this manner. In the presence of severe vomiting or diarrhea or if the acidosis is severe it is necessary to give the bicarbonate intravenously or subcutaneously. For such administration the solutions should be prepared specially. For intravenous injection a 4 per cent. solution of sodium bicarbonate is used, for subcutaneous injection a 2.5 per cent. solution. For most cases a subcutaneous injection is sufficient. Intravenous injection should be given only when the acidosis is very severe, and not until measure have been taken to replace the loss of fluid. Otherwise the concentration of the blood may be much increased and harm result. By means of this treatment, the toxic symptoms in most cases of intestinal intoxication may be eliminated.

84. **Complement Fixation with Specific Antigen in Acute Poliomyelitis.**—A specific antigen is prepared by Neustaedter in the following manner: A 5 per cent. suspension of brain and cord of monkeys, that have died of poliomyelitis, is filtered through a Berkefeld or a Heim filter, sterile water being used as a menstruum. Trypsin is added in proportion of 1:50 and permitted to act at room temperature for three hours; 0.4 per cent. tricresol is then added to stop further action by the trypsin. This is kept in a refrigerator and ready for use. It keeps well for a month without impairing its activity. In making the tests the antigen is diluted 1:5, the spinal fluid is used in ten times the amount of the serum. The tubes are incubated as a rule for two hours in the water bath at 37 C. Two units of complement and two units of amboceptor are used, the cells having been sensitized with the amboceptor before they are added; 0.1 c.c. of a 5 per cent. suspension of sheep's corpuscles was used for indicator of the reaction of fixation. The complement was a pool of the serum of from six to ten pigs in every set of tests. The serum from each pig had been tested before pooling for natural antisheep amboceptor, for specific fixation with each control antigen and serum combination to be used in the tests, for hemolysis of 0.1 c.c. of a 5 per cent. suspension of sheep's erythrocytes with the Wassermann unit of antisheep amboceptor. On hundred and fifty-two spinal fluids and sixty blood serums were examined. The cases were frank and suspected, in the febrile and afebrile stages. The duration of the disease was from one to forty days. Twenty-three, or 53.5 per cent., gave a positive reaction; twelve, or 27.9 per cent., gave a doubtful one, and four, or 9.5 per cent., a negative reaction. Of fifteen spinal fluids from cases of tuberculous meningitis seven proved negative with the poliomyelitis antigen, one +, one + +, six were anticomplementary. Of twenty spinal fluids of cases of epidemic cerebrospinal meningitis, thirteen were negative, three doubtful and four anticomplementary. Of twenty-two spinal fluids of cases of tertiary syphilis, one gave a + + + + reaction with the poliomyelitis antigen, one +, five +, three were anticomplementary and the rest negative. Of forty spinal fluids of normal and diverse pathologic conditions, one gave a + + + + reaction with the poliomyelitis antigen, seven were anticomplementary, and the rest negative. Of sixty blood serums of various pathologic conditions, none gave a positive reaction with the poliomyelitis antigen. It would appear that an antigen has been found which probably is specific and fixes complement, hence of positive diagnostic value in poliomyelitis.

Ohio State Medical Journal, Columbus

August, 1918, **14**, No. 8

87 Infection of Female Genital Tract; Its Relation to Arthritis. E. C. Steinharter, Cincinnati.—p. 468.
88 Hospital Standardization. H. K. Yaggi, Salem.—p. 470.
89 The Gallbladder from Surgical Standpoint. A. H. Dunn, Chillicothe.—p. 473.
90 Evisceration. J. H. McCassy, Dayton.—p. 476.

Oklahoma State Medical Association Journal, Muskogee

August, 1918, **11**, No. 8

91 Rectal Examination in Labor. C. V. Rice, Muskogee.—p. 251.
92 Prevention and Treatment of Puerperal Laceration. W. W. Wells, Oklahoma City.—p. 258.
93 Surgical Aspects of Obstetrics. E. F. Hayden, Tulsa.—p. 264.
94 Typhoid. T. W. Brewer, Miami.—p. 270.

Rhode Island Medical Journal, Providence

August, 1918, **2**, No. 8

95 Medical Activities of Navy. J. C. Da Costa.—p. 115.
96 American Flag. S. H. Davis, Westerly.—p. 123.

Surgery, Gynecology and Obstetrics, Chicago

August, 1918, **27**, No. 2

97 *Experience with Foerster's Operation for Gastric Crises and Spastic Paralysis. K. Kawamura and T. Kimura, Kyoto, Japan.—p. 129.
98 *Esophageal Diverticula. E. S. Judd, Rochester, Minn.—p. 135.
99 Epithelioma. A. C. Broders and W. C. MacCarty, Rochester, Minn.—p. 141.
100 Exfoliative Vaginitis; Report of Cases. W. Kerwin, St. Louis.—p. 151.
101 Fibrosarcoma of Mesentery. B. Solomons, Dublin, Ireland.—p. 154.
102 Surgical Methods in Treatment of Malign Affections of Superficial Lymphatic Tissue. J. L. Yates, Milwaukee, Wis.—p. 156.
103 *Induction of Labor at Term. C. B. Reed, Chicago.—p. 163.
104 Problem of Reconstruction and Reeducation of Disabled Soldier. R. W. Lovett.—p. 169.
105 Combined Inguinofemoral Hernia Due to Suppurative Destruction of Poupart's Ligament, with Use of Sartorius Muscle in Repair. E. D. Twyman, Kansas City, Mo.—p. 182.
106 Case of Aberrant Thyroid Tumor of Tongue. M. A. Rabinowitz, Brooklyn.—p. 191.
107 *Study of Krukenberg Tumor. R. H. Major, Rosedale, Kan.—p. 195.
108 Carcinoma of Umbilicus; Report of Two Cases. F. Warner, Columbus.—p. 204.
109 Extraperitoneal Cesarean Section in Certain Infected Cases with Carrel After-Treatment. J. W. Markoe, and R. McPherson, New York.—p. 209.
110 Lipomata in Sarcomatous Transformation; Report of Two Cases. H. Schiller, Chicago.—p. 218.
111 *Case of Gastric Ulcer Caused by Shell Fragment. L. Leyva, France.—p. 220.
112 Case of Transfusion of Blood in Septicemia of Long Duration. C. Moncany, France.—p. 221.
113 Unusual Propagation of Vascular Bruit. C. Moncany, France.—p. 222.
114 *Modified Rammstedt Operation for Relief of Pyloric Obstruction in Infants. R. C. Cupler, Chicago.—p. 223.
115 Radical Cure of Hemorrhoids. C. J. Drueck, Chicago.—p. 224.
116 Artificial Vagina Utilizing Single Portion of Ileum. A. W. Abbott, Minneapolis.—p. 227.
117 Improved Murphy Drip Apparatus. H. D. Furniss, New York.—p. 229.

97. **Foerster's Operation for Gastric Crises and Spastic Paralysis.**—Foerster's operation was performed successfully in two cases cited by the authors. In the first case, vomiting and pain stopped entirely from the day following the operation and with a normal appetite of a healthy person, the patient gained in weight daily. The second patient, a boy, who could not stand up at all before the operation, walked fairly well with crutches and especially well when led by the hand. But at times after the rhizotomy, paraplegia occurred, which later disappeared partially although not completely. As its causes, the following technical failures are enumerated: harsh treatment of the spinal cord, injury of small arteries resulting in hemorrhage into dural sac and disturbance of nutrition of the cord, excessive desiccation of the cord on account of a long-continued depression of the head with elevated pelvis. Therefore, if a final decision as to the results of the operation is to be given, it is necessary to observe the patient for a long time afterward. In Little's disease, the after-treatment of the patient is of supreme importance. The use of the plaster of Paris bandage, with its covering easily removable, suitable exercise, massage, electrotherapy, etc., should be continued for some time.

98. **Esophageal Diverticula.**—In thirty-five cases in which operations were done in the Mayo Clinic there were two deaths. In each instance death occurred on the second day; both patients were very old and feeble. The cause of death in both instances was cardiac disorder. One died after the first of a two-stage operation; one after excision of the sac and inversion of the base. In one of these, because of many general contraindications to operation, the patient was taught to pass a stomach tube, and for some months he lived by feeding himself in that manner; then the sac became so large that it produced a great deformity in the esophagus. The patient could no longer pass the tube and an operation seemed imperative. The first stage of the operation was performed but death took place suddenly the next morning. The history of the second patient is much the same, except that the sac was smaller and was removed at one operation. This patient also died the morning following the operation. In two of the remaining cases, there was some evidence of a recurrence of the diverticulum. One of these patients was entirely relived by passing a sound a few times, and in the other case it was necessary to reoperate for the recurrence. When heard from recently nearly all of the thirty-three patients were entirely free from symptoms. Judd believes that the infolding operation and the two-stage operation are the procedures preferred and can be performed with practically no mortality. In operating on these cases, the approach was from the left side of the neck in all except one case and that was from the right side. In six cases a transverse incision was made. One patient had been operated on for diverticulum one year before coming to the clinic. There was recurrence in one case. The patient began to have trouble about one month after operation and was operated on nine months later by the two-stage operation. This was the only recurrence in the series. The sac was excised and the base inverted in eighteen cases. The sac was excised and the base ligated and turned in in four cases. The Bevan operation was done in three cases. The two-stage operation (C. H. Mayo) was done in ten cases. There were two deaths following operation, both on the second day. Both patients were known to be poor surgical risks; one a male aged 76 years, the other a male aged 73 years.

103. **Induction of Labor at Term.**—Reed reports the results of his method of inducing labor by introducing a Voorhees bag in a second series of 100 cases, primiparas fifty-one, multiparas forty-nine. The average duration of labor was eight hours and eight minutes. This figure is greater by fifty-three minutes than the average in the first series, but it may possibly be accounted for by the presence of sixteen more primiparas in this series. The longest labor was twenty-eight hours; the shortest, one hour. The shortest labor in a primipara was one hour and twenty-five minutes. The bag broke during or shortly after insertion, three times; but it was reinserted only once. The membranes were ruptured by the introduction of the bag five times. In one case of hydramnios it was intentional. There were no maternal deaths. Forceps were used sixteen times, to hasten labor three, deep transverse arrest seven, uterine inertia four, occipitoposterior two; version and extraction was done twice, once to expedite labor in a heart case and once for prolapsed cord. The average time for the expulsion of the bag was three hours and nineteen minutes, as compared with three hours and twenty minutes in the previous series. The longest detention of the bag in the cervix was nine hours, the shortest ten minutes. In all cases but two, weights were applied after the introduction of the bag, the traction being just sufficient to keep up a mild pressure on the cervix. In no instance was it necessary to dilate the os before inserting the bag. Five cases required a few whiffs of chloroform during the introduction of the bag to control nervousness rather than actual pain. Involution was normal in all cases.

107. **Krukenberg Tumor.**—Including Major's case, at least fifty-five cases of Krukenberg tumor have been reported. To this number Major would add eight probable cases. Eighteen cases were collected in which the presence of a primary growth in the gastro-intestinal tract was demonstrated. Five cases have been reported in which no primary tumor of the stomach or intestines was observed at necropsy. Three of these may be open to the objection that no microscopic examination of the stomach was made. Two of the cases at least meet every apparent objection and camot be regarded as other than primary ovarian tumors. In forty-three cases where the data were completed, the Krukenberg tumor was bilateral in thirty-nine instances (90 per cent.). The tumor occurred in the majority of cases during the period of sexual activity—the average age was 36 years. The statement sometimes made that the Krukenberg tumor is relatively benign is not borne out by the subsequent history of these patients. All of the cases reported in the literature where the later course was known terminated fatally.

111. **Gastric Ulcer Caused by Shell Fragment.**—A soldier, wounded at Verdun, April 23, 1916, by several splinters of shell, arrived at the American ambulance with the diagnosis of superficial wounds of the right thigh, left leg, forehead, and scalp. The wound of the thigh was the largest and

involved the external muscles. Many splinters were removed and the patient was completely healed of his wounds forty-five days after his arrival at the hospital. Just as he was about to be discharged, he complained of abdominal pain and said he had the sensation of a foreign body in his abdomen. Palpation did not reveal any muscular resistance, but the continuous pain in the epigastric region was more severe on pressure. The patient was a big and very fat man. There was no appreciable trace of any wound, but the abdomen was striated, as is often the case in stout people. Roentgen examination was negative. One night the patient complained of severe pain and on examining the feces Leyva noted the presence of blood, the feces being of a coffee ground color. He suspected gastric ulcer. The roentgen ray showed on the posterior wall of the stomach 2 inches from the pylorus, an ulceration of a half inch in diameter.

A superumbilical laparotomy, following the method of Pauchet, was performed. This method consists in opening into the lesser peritoneal cavity through the gastrocolic omentum in order to explore the posterior wall of the stomach. There were no adhesions, and exactly at the place indicated by the roentgen ray Leyva found an ulcer, nonperforated, and behind it a shell splinter very irregular and sharp pointed, about a half inch thick. Leyva calls attention to the possibility of a soldier having a splinter in his abdomen without any appreciable trace of a skin wound; that the roentgen ray does not always show the presence of foreign bodies; the great responsibility that rests with the war surgeon when he makes a diagnosis of malingering.

114. **Modified Rammstedt Operation for Relief of Pyloric Obstruction in Infants.**—The operation described by Cupler differs from the Rammstedt procedure only inasmuch as serosa is made to cover the mucosa.

Vermont Medicine, Rutland

July, 1918, **3**, No. 7

118 Indigestion. A. L. Patch, Windsor.—p. 165.

West Virginia Medical Journal, Huntington

July, 1918, **13**, No. 1

119 Gastrojejunostomy in Ulcerative Perforation of Duodenum. W. W. Golden, Elkins.—p. 1.
120 Paroxysmal Tachycardia. E. S. Dupuy, Beckley.—p. 2.
121 Clinical Consideration of Peptic Ulcer. J. A. Lichty, Pittsburgh.—p. 6.
122 History of Five of Fifteen Cases of Dementia Praecox Treated by Isotonic Salt Solution. L. V. Guthrie.—p. 14.

August, 1918, **13**, No. 2

123 Practical Points in Etherization. T. H. Becker, Bluefield.—p. 41.
124 Vesical Calculi. T. K. Oates, Martinsburg.—p. 47.
125 Diagnosis and Treatment of Cerebrospinal Syphilis. J. D. Willis, Roanoke, Va.—p. 49.
126 Mental Defectives. J. R. Bloss, Huntington.—p. 56.

Wisconsin Medical Journal, Milwaukee

August, 1918, **17**, No. 3

127 Epidemiology of Acute Appendicitis in Relation to Acute Nasal and Tonsillar Infections. J. S. Evans, Madison.—p. 91.
128 Value of Complement Fixation Test in Diagnosis of Tuberculosis. J. J. Seelman, Milwaukee.—p. 93.
129 Pathology of Glaucoma. C. Zimmermann, Milwaukee.—p. 98.
130 Eye in Its Relation to Constitutional Diseases. E. H. Brooks, Appleton.—p. 103.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Journal of Tropical Medicine and Hygiene, London

July 15, 1918, **21**, No. 14

1 *Sudanese Streptococcal Dermatitis. A. J. Chalmers and R. G. Archibald.—p. 141.
2 *Curability of Madura Foot. F. Woolrabe.—p. 146.
3 *Treatment of Human Trypanosomiasis by Injectio Antimonii Oxid. W. E. Masters.—p. 146.

1. **Sudanese Streptococcal Dermatitis.**—Chalmers and Archibald describe a form of chronic infective eczema of the acanthotic type associated with a streptococcus, which apparently is, at all events at times, the sole causal agent. The lesions are types of a "streptococcal dermatitis" caused by *S. versatilis* Broadhurst, 1915, and are readily cured by vaccine therapy. This organism is a common denizen in the feces of horses in the Sudan and elsewhere, and hence the possible source of the infection.

2. **Curability of Madura Foot.**—Woolrabe cites a case to show that there are conditions in which patients with madura foot may recover. In 1915 a male Siamese, aged 25, came to the hospital very anemic and emaciated. His foot, a typical madura foot of the white kind, as shown by the microscope, was twice the normal size, honeycombed with sinuses, and with two toes gone. Treatment was more or less after the subjoined scheme, but he followed it only if and when he liked, namely: 1. Total immersion of foot in weak tincture of iodin solution, 1:50 or 1:100, for several hours a day. 2. Painting of foot and lower third of leg with tincture of iodin every three days. 3. Painting ulcerated surfaces with liquor epispasticus (official B. P. cantharides blistering solution) every week. 4. Occasional courses of potassium iodid by Curle's method (*Practitioner*, London, December, 1912). 5. Large doses of syrup of iron iodid and Easton's syrup at other times. He left without warning in about five months. Whether post or propter, his foot was of normal size, and the sinuses were healed. He could walk well and was in robust health.

3. **Treatment of Human Trypanosomiasis by Injectio Antimonii Oxid.**—Injectio antimonii oxid consists of antimony oxid *dissolved in equal parts of glycerin and water* slightly heated, and is prepared in capsules of 1 c.c. and 2 c.c., containing $^{1}/_{100}$ and $^{2}/_{100}$ grain each of the drug, respectively. It is prepared and supplied in 100 c.c. sealed phials, of which from 2 to 3 c.c. can be given at each injection, always intramuscularly and not subcutaneously. Sixty-three cases of trypanosomiasis were chosen by Masters for a series of experiments. Of these, thirty patients absconded before they had received $^{30}/_{100}$ grain of the drug. The remaining thirty-one patients received 925 capsules of the drug between them. These cases were divided into two classes, thus:

Class A: In all these trypanosomes were found in the gland juice on the first examination. Some of them were in the first and some were in the second stage of the disease—that is to say, some were curable and some were incurable. The attempt was to clear out the trypanosomes from the lymphatic circulation as ascertained by repeated gland punctures. Of the twenty-one cases in this class, twelve were found to be negative and nine positive after treatment. Of the nine positive cases only two had received the minimal course of $^{40}/_{100}$ grain of the drug.

Class B: In these the cervical lymphatic glands were so atrophied that no trypanosomes could be found, or if they were found at the onset, the disease was so advanced that repeated examinations later would have been impracticable. The purpose was to ascertain the influence of the drug on the course of the symptoms of the disease in late cases. Of the ten cases in this class, six patients died in whom no improvement was noted; one was slightly improved; two were much improved, and one was discharged free from all signs and symptoms of the disease. Masters is convinced that injectio antimonii oxid will clear the trypanosomes from the lymphatic circulation more readily than any drug or combination of drugs hitherto applied to the disease. The general symptoms are more rapidly and more generally cleared up than with any other medicaments. The drug should be given in $^{3}/_{100}$ grain doses every other day until a minimal dose of $^{40}/_{100}$ grain has been given. If the trypanosomes are not cleared out by the $^{40}/_{100}$ dose, sodium arsanilate, 0.77 gm., should be given in addition to more injectio antimonii oxid every fifth day. One large dose is more effective than many small doses.

Lancet, London

July 27, 1918, **2**, No. 4952

4 Pathology of War Neuroses. J. S. Bury.—p. 97.
5 Gunshot Wounds of Peripheral Nerves. C. Noon.—p. 100.
6 *Gunshot Wounds of Thorax; Their Later Stages. J. A. Wilson.—p. 102.
7 Capsulate Mucoid Forms of Paratyphoid and Dysentery Bacilli. W. Fletcher.—p. 192.

8 Trypsin Digested Blood Medium for Culture of Pfeiffer's Influenza Bacillus. J. Matthews.—p. 104.
9 Laked-Blood Agar Medium for Isolation and Cultivation of Meningococcus, Enterococcus and B. Typhosus. W. J. Wilson and G. Darling.—p. 105.
10 Military Orthopedic Surgery; Its Scope and Aims. R. Jones. —p. 115.

6. **Gunshot Wounds of Thorax.**—Fifty cases of gunshot wounds of the thorax in the later or terminal stages are analyzed by Wilson. On an average, the men were admitted eighteen days after being wounded. Wounds of entrance were: chest, nineteen; back, twelve; shoulders, eight; sides, seven, and neck, four. Seven cases of wounds of thoracic wall did not penetrate the pleura. Two of these had hemoptysis, four had hemothorax; of the latter two manifested pleuritic friction. One had a small swelling over the ribs due to incarceration of a piece of cloth; here also pleuritic friction was heard over the adjacent area. This came on late in the course of the illness, probably because of extension of the inflammation. One developed pneumonia and another a persistent form of basal congestion or bronchopneumonia. Thus, concussion may cause hemoptysis, hemothorax or pneumonia. In most of the cases of penetrating wounds, hemoptysis was present sometimes for several days after the wounding. Several men stated quite definitely that they did not spit blood, and yet they presented physical signs of effusion. In eight cases ribs were broken, in four the scapula, in two the humerus (one requiring amputation at the shoulder), in one the clavicle. In one, vertebrae were damaged; in one the esophagus was slightly damaged. In three, the pleura had been sewed up, in one, the diaphragm. In sixteen cases, the wounds were through and through; some of these had only short tracks through the lungs. Several did not present any physical signs of hemothorax. In thirteen cases, resection of the rib was performed for empyema. Several had physical signs of contralateral disease of the lung or pleura. Several cases with the physical signs of effusion were not aspirated, as there were no indications of sepsis; physical signs gradually disappeared. Pleuritic friction was frequently heard in the later stages. Twenty-eight, or more than half, returned to duty in from two to four months. Two patients died from septic pneumonia.

Medical Journal of Australia, Sidney

July 6, 1918, **2**, No. 1

11 Value of Roentgen Rays in Diseases of Alimentary Tract. H. Harris.—p. 1.
12 Value of Roentgen Rays in Gastro-Intestinal Diseases. C. Ayres. —p. 5.

July 13, 1918, **2**, No. 2

13 Bacteriologic Study of Seventy Cases of Urinary Infection, with Special Reference to Pyelitis. K. F. C. Brunnich.—p. 23.

Archives des Maladies du Cœur, etc., Paris

July, 1918, **11**, No. 7

14 *Acute Leukemia. C. Achard and A. Leblanc.—p. 289; L. Giroux and Verdier.—p. 309.

14. **Acute Leukemia.**—Achard and Leblanc report two cases in men of 46 and 63, fatal in about six weeks in one and in five and a half months in the other. In the first case the symptoms were those of a severe acute hemorrhagic infection with stormy onset and high fever; the other case progressed slowly and inexorably to the terminal cachexia without any acute incidents, but the blood picture was about the same in both. They give the tabulated details of similar cases from the literature and discuss some of the problems presented, the relations between the different elements of the blood, the nature of the reactions in the blood-producing organs, etc. In Giroux and Verdier's case the patient was a man of 25 who had been at the front for three years. The disease ran a rapidly fatal course in two weeks.

Archives Médicales Belges, Paris

February, 1918, **71**, No. 2

15 *Organization of the Surgical Service. Depage.—p. 113.
16 Tropical Dysentery in Spain. F. Martinez.—p. 124.
17 Segmentary Lymphoma of Jejunum. Delporte and Sand.—p. 135.
18 Inversion of Viscera; Two Cases. Colard and Couturier.—p. 140.

15. **Organization of Surgical Service.**—Depage's address "L'organisation sanitaire des armées" was presented at the recent Inter-Allied Surgical Conference. He discussed the subject from the standpoint of the treatment of wounds, which, he says, first entered on the scientific period with the introduction of the Carrel method. Carrel's innovation was not so much any special method of treating wounds, but the adoption of the principle that the whole treatment of the wounded must be according to a certain system from beginning to end, whatever hospitals he may pass through—the hospital system forming a whole with interchangeable parts, like an industrial establishment. The wounded man, through whatever hands he passes, gets uniform treatment. The authorities formally adopted in March, 1917, this principle of technical coordination so far as fractures were concerned. The principle of linked hospitals was applied in several sectors. Heitz Boyer's linked group included the hospital at Châlons, 28 km. from the front; here the urgent operations were done; then came the Troyes hospital, 70 km. farther back, to which the wounded were sent as soon as all danger of infection was past. They stayed here until the wound had healed or the fracture became consolidated. Then they passed to the *centre de physiothérapie,* only 3 km. distant, if there was hope of the men's returning to the service. If not, they were sent to the *filiale de reconstitution* near Fontainebleau, not far from Paris.

In Belgium conditions have not permitted this system of linked hospitals, the men being kept at the advanced hospital until complete recovery. This has numerous advantages in a quiet sector, but is out of the question during an offensive movement. In conclusion Depage emphasizes the tangible benefits from keeping abreast with the progress of science. Before the introduction of the Carrel method, less than 5 per cent. of the men with fracture of the femur recovered function enough to resume active service. Now nearly 50 per cent. return to the front. Since the beginning of the war France has dismissed from the service with a comparatively high pension 18,000 men with fractured femur. If the Carrel method had been applied from the first, 9,000 men could have been restored to the service and the treasury saved these 9,000 pensions, to say nothing of the saving from a shortened hospital stay, and the saving of man power. These figures illustrate the influence which war surgery exerts on the finances of a country according as it is well or badly applied.

Archives de Médecine et de Pharmacie Militaires, Paris

April, 1918, **69**, No. 4

19 *Primary Suture of War Wounds. G. Gross.—p. 481.
20 *The First Aid Station. M. Gaujard.—p. 499.
21 *Action of Microbes and of Antiseptics on Catgut Ligatures. K. Taylor.—p. 513.
22 *Backward Dislocation of Elbow. M. Verny.—p. 517.
23 Roentgen Localization of Projectiles. R. Bonneau.—p. 519; L. Roué.—p. 523.
24 *Mumps and Myocarditis. M. Pujol.—p. 527.
25 *Results of Physical Training. L. Lièvre-Brizard.—p. 539.
26 *Present Status of Autochthonous Malaria. Rieux.—p. 559.
27 *Conclusions Adopted by Fourth Inter-Allied Surgical Conference, —p. 570.

19. **Primary Suture of War Wounds.**—Gross regards the primary suture of war wounds as the greatest progress in military surgery realized during the war. Until then primary suture was exceptional. "Thanks to Tissier's works," he says, "the primary suture is now prevailing more and more and, in all probability, tomorrow it will be the routine practice. The Inter-Allied Conference endorsed it, and a pleiad of young surgeons are showing me daily the magnificent results obtained with primary suture of wounds." He adds that he has been studying it with the closest attention for more than two years and has been striving to popularize it. The only conditions necessary for constant results are a good surgical and a good bacteriologic technic; being able to keep the wounded long enough for complete healing, that is, about two weeks, or, if they have to be evacuated in four or five days, to pass them into the hands of some other surgeon skilled in carrying out the system. This *liaison chirurgicale* is indispensable if military exigencies compel the patients to be sent farther back from the front. He recapitulates the

whole theory and practice, the main point being that every war wound which does not contain the streptococcus should be sutured. Practically every war wound reaching his hospital is given the primary suture, but the stitches are cut if the bacteriologist's report in a few hours shows the presence of streptococci.

20. **First-Aid Posts.**—Gaujard gives an illustrated description of dugouts and cellars equipped for a first-aid post, such as have proved most efficient. The posts serve also as regimental infirmaries. He has been impressed with the frequency of skin affections, infection developing in erosions, scratches, etc. The frequency of these infections is shown by the lymph glands in the axilla; in examining one company preliminary to vaccination, only twenty-three of the men were found free from this adenitis.

21. **Disintegration of Catgut Ligatures.**—Taylor reports, as the result of considerable research, that a catgut ligature in a wound is liable to become disintegrated, and secondary hemorrhage follow, when the wound contains the *B. aerogenes-capsulatus-welchii.* No other micro-organism seems to attack the catgut, and none of the antiseptics modifies the elasticity or the strength of the catgut, but under the influence of hypochlorite solution, the surgical knot always comes untied. Hence he warns that Carrel's solution is contraindicated for a wound in which an important vessel has been ligated, especially in the presence of the *B. aerogenes-capsulatus.*

22. **Backward Luxation of Elbow.**—Verny found in three cases that an otherwise irreducible backward luxation of the elbow corrected itself spontaneously when the man hooked his elbow over the round of a ladder, the highest he could reach, and bore his weight on it. The relaxation of the triceps is probably responsible for this as the elbow is hooked high up on the ladder standing against the wall, the man leaning against the ladder as he stands sideways at the foot.

24. **Mumps and Myocarditis.**—Pujol has encountered nine cases of myocarditis among 450 men with mumps, but some other cause seemed to have cooperated in six cases. In three cases, however, the mumps seemed to be alone responsible for the myocarditis. The three men recovered, but were unable to resume active service and were given sedentary positions. In two of the cases the heart symptoms attracted attention at the height of the parotitis. One man complained of dull retrosternal pain and a few painful extrasystoles. In all, the heart action was extremely weak. This was not noticed in repose, but the reserve force was very small, and gave out at any slight exertion, with dyspnea, precordial pain and pounding in the chest when the man tried to climb stairs, carry his bed roll, or march. The physical signs are minimal, merely a variable degree of tachycardia, but functional tests readily reveal the depreciation of the organ. It is futile to attempt to return such men to active service; they merely return to the hospitals again after a change of sectors or an *affaire.* Only the milder cases can be returned to their posts with request that they be spared all but light duty. On the other hand, complete dismissal from the army is only exceptionally called for.

25. **Results of Physical Training.**—Brizard gives the average findings from 349 men taking a course of physical training at the *centre d'instruction physique du Gouvernement militaire* at Paris. The average for a man of 37 taking an eight weeks' course is a gain in weight from 64.8 to 65 km.; in the chest measure, from 90 to 93 cm. inspiration, and from 85.5 to 89.1 expiration. The waist measure was reduced from 79.2 to 77.1 and the spirometer showed an increased capacity of from 33 to 36.5.

26. **Autochthonous Malaria.**—Rieux concludes his study of the new foci of malaria that have developed in France, by urging the examination for malarial plasmodia of the colonial troops, of men returning from service in the Orient, and of Italian and other alien laborers employed in the army zone. Isolation and disinfection should be enforced for all carriers. The early diagnosis of new cases of malaria is also imperative, with prompt isolation and disinfection.

27. **Inter-Allied Surgical Conference.**—The brief conclusions are reproduced on the seven war questions discussed: transfusion of blood, trench foot, wounds of rectum and bladder, pseudarthrosis after wounds, conservative operations on the foot, and osteosynthesis in treatment of fractures. The addresses on the seventh question, sterilization of war wounds, are to be given in full in the following number.

Archives de Médecine des Enfants, Paris

July, 1918, 21, No. 7

28 *Differentiation of Diphtheria Bacillus. E. C. Aviragnet and Le Soudier.—p. 337.
29 *Epidemic of Meat Poisoning. J. Renault and Romme.—p. 351.
30 Congenital Luxation of Right Shoulder. H. L. Rocher.—p. 359.
31 *Abscess at Anus in Children. J. Comby.—p. 365.
32 Hair Balls. J. Comby.—p. 369.

28. **Differentiation of Diphtheria Bacillus.**—Aviragnet and Le Soudier admit that bacteriologic examination is not very useful for treatment in cases of diphtheria, as antitoxin is given in suspicious cases without waiting for bacteriologic confirmation. But in prophylaxis it is supremely important, for convalescents, and for all atypical cases of infectious sore throat when diphtheria is prevailing. When the examinations at several days' interval give negative findings, such cases may be regarded as nondangerous.

29. **Meat Poisoning.**—Fully 220 children developed severe poisoning after eating at the municipal canteen, and it was traced to paratyphoid bacilli in the meat. The bacilli had been killed by the cooking given the meat, so no infection resulted, but the toxins were not modified by the cooking, and severe alimentary disturbances followed, suggesting cholera, and three of the 220 died. Seven of the fourteen attendants at the canteen were also affected.

31. **Abscess at Anus in Children.**—Comby has encountered eight cases of a simple abscess at the anus in infants or young children. Straining at stool, erosions from repeated introduction of the thermometer or other cause, scratching from irritation by the oxyuris, soap suppositories or other occasional cause may induce local suppuration. Evacuation and disinfection of the abscess is all that is necessary to ensure healing. This should be systematically done before assuming a tuberculous or syphilitic origin. He warns that the thermometer or other object introduced into a child's anus should be thoroughly sterilized and cautiously worked in to avoid injuring the tissues.

Archives Mensuelles d'Obstétrique et de Gynécologie, Paris

January-March, 1918, 7, No. 1-3

33 *Anemia in the Pregnant. E. Petersen (Copenhagen).—p. 1.
34 Pituitary Extract in Obstetrics. M. Chneerson.—p. 22.
35 Colloidal Gold in Puerperal Septicemia. Chauveau.—p. 36.
36 *Welfare Work for Mothers and Children. P. Desfosses.—p. 52.

33. **Anemia in the Pregnant.**—Petersen reviews what has been written on the subject of anemia, resembling pernicious anemia, which develops in pregnant women. It is only during the last half of the pregnancy that this form of anemia develops, and the evidence he presents seems to indicate that the pregnancy in itself is the cause. None of his three cases or of Esch's six or of the others on record had shown any symptoms of anemia at any time before, and nothing except toxic action from the pregnancy could be found to explain it. In a very few cases the anemia subsided after delivery, but in the majority it continued a rapidly progressive course to a fatal termination. The women erroneously ascribe to the fact of the pregnancy any ill feelings noticed. Pallor is the first symptom to attract attention. It grows more pronounced every day, with a yellowish tinge. The mucous membranes are blanched and there is a tendency to severe epistaxis, petechial spots and hemorrhages in the retina. There may be edema of the legs, and fever may mislead the diagnosis. Vomiting and diarrhea are common, and bilirubin in the serum and urobilin in the urine testify to the destruction of red corpuscles. The mortality in the twenty-three cases compiled by Esch was 70 per cent.; in Schevelov's compilation of fifty-two it was 65 per cent.; in Seitz' forty-three it was 50 per cent.; in Deluen's five cases all died. In Petersen's cases, two of the women died. The third recovered after artificial interruption of the pregnancy. He insists that the pregnancy should be arrested if the anemia proves rebellious to medical

measures, of which the most effectual seem to be intramuscular injections of defibrinated human blood.

36. **Protection and Welfare Work for Mothers and Children.**—Desfosses tells what is being done and being planned for the reconstitution of the race in France. He describes in grateful terms the work of the Children's Bureau of the American Red Cross, and gives the French laws bearing on the protection of pregnant and parturient women and on the care of the children.

Bulletin de l'Académie de Médecine, Paris

July 2, 1918, **80**, No. 26

37 *Poisoning from Cyanamid. J. P. Langlois.—p. 6.
38 *Proper Doses of Drugs. C. Fiessinger.—p. 7.
39 *Muscle Autolysates. P. Delbet and Karajonopoulos.—p. 13.
40 *Pyocyaneus Meningitis. J. Abadie and G. Laroche.—p. 15.

37. **Cyanamid Poisoning.**—Workers on calcium cyanamid are liable to dermatitis and burns from the lime and also from the extremely high temperature to which the calcium carbid has to be raised to combine with the nitrogen. Langlois calls attention to the serious danger for such workers if they take an alcoholic drink. His research on animals confirms the clinical observation of the sensitization of the vasodilator centers by the cyanamid, so that a small glass of wine is liable to send the pulse up to 104 and the blood pressure extremely low, with rapid respiration. The man in a typical case described had syncope after drinking 30 centiliters of red wine. The syncope returned whenever he raised his head, and nausea and extreme vasodilation of face and conjunctivae were pronounced. The blood pressure kept very low for an hour, but by the end of the eighteenth hour there were no further signs of disturbance.

38. **Doses of Drugs.**—Fiessinger classes drugs according as they have a specific action on the disease or a mechanical action, like that of a drastic purgative, or a symptomatic or functional action. In this latter group the doses should not be large. Small doses, long kept up, should be the rule for symptomatic drugs. With digitalis, for instance, large doses wear out the heart; on the other hand, all laud its efficacy and harmlessness when given subcontinuously in very small doses. Patients, otherwise apparently doomed, recuperate under this and live for many years a quiet existence, avoiding extreme exertions. Danger begins with doses over 0.1 gm. of pulverized digitalis; 8 or 10 drops of the 1 per thousand solution is the extreme limit. Belladonna likewise is prescribed often in too large doses; with 0.01 gm. of the extract, signs of intolerance are common. Atropin sulphate acts effectually in doses of 0.0001 or 0.0002 gm.

Manquat agreed with Fiessinger that the doses of symptomatic drugs are altogether too large as generally given; 0.5 gm. or less of chloral have as good a sedative effect as 2 gm. He witnessed the death of a man twenty minutes after injection of 1 c.c. of pantopon. Another man of 65 succumbed after taking 0.5 gm. of antipyrin, and a child of 5 died after 0.3 gm. of antipyrin had been given in a suppository. He has also witnessed two serious mishaps after ingestion of 0.5 gm. pyramidon. Robin emphasized that the disturbance in function precedes the organic lesion, and by treating the functional disturbance early, we may hope to ward off or attenuate the organic lesion. This can be attempted with the small symptomatic doses, but different drugs with a similar action should be used in turn so that the organism will not become habituated to any one. Fiessinger asked to have a committee appointed to study the proper dosage of the more commonly used drugs when they are prescribed for their symptomatic action alone.

39. **Destruction of Tissues as Factor in Shock.**—Delbet reports research which confirms the extreme toxicity of crushed muscle tissue even when aseptic. Absorption of this muscle autolysate is undoubtedly a factor in traumatic shock. The practical conclusion is that the crushed tissues should be cleared out as an emergency measure at once, without waiting for the shock to subside.

40. **Pyocyaneus Meningitis.**—In Abadie's case, intraspinal injection of the patient's own serum apparently cured the young man when the spinal fluid and blood serum contained the pyocyaneus in pure culture. The meningitis had followed a skull wound. Three applications of this autoserotherapy were made, injecting 3 c.c. of his serum at intervals of eighteen and five days. The serum agglutinated at 1 per thousand, showing the high antitoxin content.

Journal de Médecine de Bordeaux

July, 1918, **89**, No. 7

41 *Scabies. W. Dubreuilh.—p. 183.
42 *War Suprarenal Insufficiency. J. Carles.—p. 185.
43 *Fracture Centers. A. Charrier and Maurizot.—p. 188.
44 Differentiation of True and False Aneurysms with the Oscillometer. F. Gadaud and G. Jeanneney.—p. 192.
45 *Exercise for Brain-Workers. P. Nadal.—p. 195. Conclusion.
46 Vital Statistics at Bordeaux. Davezac.—p. 204.

41. **Scabies.**—Dubreuilh remarks that the civilian and military hospitals are encumbered with cases of scabies; even the society women have it, as their husbands bring it to them on their furloughs. He has found the best salve for civilian use a mixture of 200 gm. lard with 20 gm. each of black soap, sulphur precipitate and balsam of Peru with 10 gm. beta naphthol. The whole of this is rubbed vigorously with the hands into the skin, sparing only the face and scalp, which are never affected, and the middle of the back, which is seldom involved. The salve should be rubbed in energetically for fifteen or twenty minutes at night, then sleeping in gloves and socks to keep the salve on the hands and feet. He advises repeating the applications the third and fifth nights, changing the linen the first and last days. The important part of treatment is to rub the salve all over, not merely where the lesions are apparent, beginning with the fingers and toes separately and paying special attention to the genitals, buttocks and breast. Ordinary laundering disinfects the linen. Another important feature of treatment of scabies is that the suspects in the environment must be treated too and at the same time, or reinfection is certain. The cleansing bath should not be taken until morning, when the salve is applied at night.

42. **War Suprarenal Insufficiency.**—Carles has within the last year encountered fifteen cases of what seemed to be Addison's disease, in men on active service, except that it displayed a tendency to spontaneous subsidence, even in the apparently gravest cases. A few weeks of rest and quiet, abstention from meat, and treatment with suprarenal extract soon banished all the symptoms. In two of the cases there was what Loeper has described as suprarenal dyspepsia, notably improved by epinephrin. The symptoms developed in all after a period of exhausting fatigue, an infectious disease, or gassing. The asthenia was the most striking symptom, more mental than physical. For months the men were incapable of reading a paper, writing a letter or even answering questions that required any thought. Improvement in this respect was rapid under epinephrin treatment. The blood pressure was low, but this is common among all the men at the front. A certain tendency to bronzing of the skin was perceptible in all the fifteen cases. The suprarenal glands after recovery are left below par, and resumption of active service is extremely likely to rearouse the old trouble, and the next time it might prove grave beyond recuperation.

43. **The Fracture Center.**—Charrier expatiates on the great progress that has been realized by collecting the fractured femur cases, for instance, in a hospital especially equipped for fractures. One of his illustrations show a long ward with the interminable series of frames and hammock suspension for each fractured limb.

45. **Exercise for Brain Workers.**—Nadal reviews the exercises which a busy brain worker would find convenient and useful. "Thinking," he reiterates, "is a product of the sensations which reach the consciousness from all parts and promote or check the mysterious fermentations of the subconscious. Thought is actually a secretion of the body as a whole." The brain worker is too apt to forget that the product of his brain, in the ultimate analysis, is the result of the functioning of his physical body. Nadal suggests a number of simple indoor exercises, convenient for the sedentary worker. He denounces bicycling as the poorest form of outdoor exercise, as only the legs work.

Lyon Médical

June, 1918, **127**, No. 6

47 *Trauma and Tuberculosis. Péhu and Daguet.—p. 241.
48 *Intoxication with Illuminating Gas. R. Pauly.—p. 247.
49 *Embedding in Paraffin. C. Dunet.—p. 256.
50 Kidney Anomalies; Three Cases. Be Teyssier.—p. 260.

47. **Traumatism and Tuberculosis.**—Péhu and Daguet report five cases in which pulmonary tuberculosis developed after a war wound of the chest. These were the only ones in which tuberculosis has developed in a total of 146 cases of war wounds of lungs or pleura or both. Even in these five, the tuberculous process developed on the same side only in two. To accept a direct connection between the war wound and pulmonary tuberculosis, tubercle bacilli must be evident in the sputum, the tuberculous lesion must be on the same side as the wound—a scar may be merely evidence of some superficial incision on the other side—and the interval between the wound and the pulmonary disease must not be too long.

48. **Poisoning by Illuminating Gas.**—Two women found in the same room with a gas jet open presented absolute coma for thirty-six hours, with trismus during all this period, and a temperature of 39.6 C. in the woman of 33 and 40 C. in the girl of 17. The temperature gradually subsided to normal in the course of six days. The gas seems to poison the central nervous system with a more lasting toxic action than it has on the blood. Both the women recovered after a week of weakness of the legs; there was no albuminuria or glycosuria. Treatment consisted in injections of caffein and camphorated oil, with an abundant venesection followed by subcutaneous saline infusion. During the first day arrangements were made also for almost continuous inhalation of oxygen.

49. **Improved Technic for Embedding in Paraffin.**—Dunet accomplishes the same purpose as the usual water and alcohol technic by placing the specimen—dried between blotting paper and not rinsed—directly in the mixture consisting of 10 parts of pyridin, 40 parts chloroform and 50 parts acetone. These ingredients are mixed cold beforehand; the amount used is about twenty times the volume of the specimen. The latter is suspended by a thread in the mixture in a test tube or other vial, and is left in the fluid for from ten minutes to an hour according to size. The fluid is then poured off and fresh used for a second bath for the same length of time. The specimen is then transferred directly into the paraffin. Specimens treated by this rapid method take stains as usual, and the specimens keep perfectly.

Paris Médical

June 8, 1918, **8**, No. 23

51 *Auscultation in Sphygmomanometry. Tixier.—p. 449.
52 Technic for Bacteriologic Examination of a Chancre. L. Tribondeau.—p. 454.
53 *Distomatosis of the Liver. De V. de Lavergne.—p. 459.
54 *Factitious Diplopia. F. Terrien.—p. 462.

51. **Auscultation in Estimation of the Pulse.**—Tixier extols the facility, constancy and accuracy of the findings with auscultation in sphygmomanometry. He quotes Gallavardin's saying that sphygmomanometry is to chronic disease what the thermometer is to acute disease. Any old sphygmomanometer can be arranged for auscultation by adding the pneumatic cuff, the bulb, phonendoscope and biauricular stethoscope.

53. **Distomiasis in Man.**—Lavergne has encountered the eggs of the distoma in stools from two soldiers within the last year, and is convinced that they would be found oftener if systematically sought. The parasite is widely prevalent in cattle in France, especially in sheep. The parasite and its intermediate host abound in marshes, and man can acquire it not only in drinking the water but in dirt getting on his hands before eating.

54. **Factitious Diplopia.**—Terrien says that men who have had diplopia sometimes complain of it after it has ceased, hoping to get longer sick leave. This can be detected by having the man look at the light of a candle in a darkened room, while a light blue glass is placed in front of one eye, and then an opaque glass is substituted for the transparent glass. If he says the diplopia still continues, his simulation is revealed.

Presse Médicale, Paris

July 4, 1918, **26**, No. 37

55 *Resistance of the Meningococcus to Antiserum. M. Bloch and P. Hébert.—p. 337.
56 General Anesthesia in War Surgery. P. Picard.—p. 340.

July 11, 1918, **26**, No. 39

57 Bacteriologic Diagnosis of Dysentery. A. Ascoli.—p. 357.
58 *Bleeding Bronchitis. H. Violle.—p. 359.
59 Treatment of Chancrellous Bubo by Injection of Iodoformed Petrolatum. W. Dubreuilh and E. Mallein.—p. 361.

55. **Resistance of Meningococcus to Antiserum Treatment.**—Bloch and Hébert ascribe the fatal outcome in certain cases of meningitis, notwithstanding early and intensive serotherapy, to invasion of the blood by the meningococcus. The meningococci may become ensconced in the perivascular sheaths inside the pia or nearby. Parameningeal foci of this kind, in contact with the ventricular-subarachnoid fluid without opening directly into it, would explain the cases rebellious to intraspinal injection of the antiserum. These reservoirs of infection are outside of the meninges, and are not reached by the intraspinal injection. From these foci the meningococci can invade the blood—inducing septicemia—or they can start the meningitis anew. In order to act on these foci, the antiserum has to be injected into the general circulation as well as into the subarachnoid space. Another reason for the injection into the general circulation is that the meninges will not stand too frequent intraspinal injections. Anaphylaxis need not be feared if the antiserum is injected simultaneously into the spinal cavity and into the general circulation. A very severe case is described in which the man of 30 had meningococcus B meningitis and septicemia with double iridocyclitis. Under early and vigorous serotherapy by both routes, complete recovery followed. The antiserum can be given by the vein or intramuscular or subcutaneous, but the intramuscular route seems preferable.

58. **Bleeding Bronchitis.**—A somewhat similar article by Violle was summarized in these columns, Aug. 17, 1918, p. 605.

Revue Médicale de la Suisse Romande, Geneva

June, 1918, **38**, No. 6

60 *Placenta Praevia and Eclampsia. G. Rossier.—p. 353.
61 Diaphragmatic Hernia. C. M. du Pan.—p. 363; Montandon.—p. 373.
62 Suprarenal Insufficiency. N. Betchov and V. Demole.—p. 379.
63 *Expulsion of Esophagus Mucosa. A. Sauvin-Thury.—p. 386.

60. **Placenta Praevia.**—In case of placenta praevia, Rossier tampons the vagina only when the cervix is not dilated enough to admit two fingers, and only when, through a boiled speculum, he can pack in sterilized iodoform gauze from a Dührssen box. Tamponing done in this way is free from objections. If the cervix allows the passage of two fingers, tamponing is contraindicated, and the woman should be prepared for an eventual abdominal operation. The Braxton-Hicks version condemns the child in advance, as a rule, and hence with a viable fetus it should be reserved for cases in which cesarean section is impracticable.

60. **Eclampsia.**—Rossier insists that in case of eclampsia the woman should be delivered as promptly as possible, and declares that cesarean section realizes this better than anything else. In a case described, the convulsion lasted for thirteen minutes and was followed by twenty minutes of coma. The blood pressure was 180, but dropped to 150 after venesection, and there was 32 per thousand albumin in the urine. The condition improved but by the fourth day the blood pressure had run up to 195, and there was 7 per thousand albumin in the scanty urine. The next day the blood pressure was 210, and the cervix was permeable only for one finger. Confident that the child would die if there were another convulsion, he delivered it by a classic cesarean section, and both mother and child did well thereafter, the blood pressure rapidly falling and no further convulsions developing. This technic applied in nineteen cases has given a mortality of 21.1 per cent. This is less than with any other treatment that has been applied in his service.

63. **Expulsion of Lining of Esophagus.**—Thury gives an illustration of the lining of the esophagus as it was expelled

entire by a multipara of 48. She had always been in good health, and nothing pathologic could be found in it except the fact of its expulsion as a tube 34 cm. long, with an additional segment 4 cm. long. While eating breakfast she felt a sudden pain as if she had swallowed an overlarge chunk of bread. The pain was so severe that a physician was called in to give a dose of morphin. By the fourth hour the pain was terrible, and she began to vomit blood and seemed to be suffocating. An hour later her neck became enlarged, and she expelled a membrane from her mouth, her husband drawing it out, believing that it was a tapeworm. She vomited from time to time brownish blood, about a liter in all. There was no history of swallowing a caustic or taking medicine, and the mucosa showed no signs of inflammation. Swallowing afterward was extremely painful and almost impossible. Treatment was restricted to a few swallows of diluted hydrogen dioxid and sterilized oil, with nutrient enemas. By the end of a week she was able to take fluid food by the mouth, and in two months seemed to be quite restored except occasionally a slight difficulty in swallowing. The only explanation that seems plausible is the assumption of a spontaneous submucosa rupture of a varicose vein in the esophagus. Such a hemorrhage might have detached the mucosa and led to its expulsion.

Correspondenz-Blatt für Schweizer Aerzte, Basel

June 29, 1918, 48, No. 26

64 *Food Problems. W. Silberschmidt.—p. 849.
65 Wartime Diets. A. Gigon.—p. 857.
66 Transfusion of Blood. C. A. Pettavel.—p. 862. To be continued.
67 Triple Staining Culture Medium for Differentiation of Typhoid and Dysentery. R. Massini.—p. 887.

64. **Food Problems.**—Silberschmidt remarks that in Switzerland 50 per cent. of the albumin, 70 per cent. of the fat and 20 per cent. of the carbohydrates consumed are derived from domestic milk and its products. All the sugar is imported, and 60 per cent. of the carbohydrates. He urges breeding of fish in the lakes. The wartime diet seems to have increased the number of urinary disturbances, especially in the elderly. He adds that in Germany a loss of from 200 to 350 gm. per day has been repeatedly observed of late. Last year an average loss of 10 per cent. in the weight of adults was recorded. The increase in insanity may possibly be due in part to this cause, as also the cases suggesting exophthalmic goiter which have been reported in Germany. The well known fact that ill fed persons are more prone than others to intestinal disturbance has been confirmed anew. In various cities there have been epidemics of enteritis and dysentery, but the specific dysentery bacilli could not be discovered. Perhaps in the undernourished otherwise harmless bacteria may induce infections. The young seem to stand the war diet better than those beyond 40 or 45; the power of adaptability in general declines with age.

He urges physicians to educate people to the advantages of the fireless cooker as ensuring more thorough and more savory cooking while saving fuel. Every housewife should be an excellent cook and it is now more important than ever that girls should be trained in cooking. The introduction of municipal kitchens has not proved a success everywhere. In Zurich, however, the school soup houses have been enlarged and are working well. The poorer scholars get the soup free, and any one can buy a quart of a good nourishing soup for a few pennies, and take it home. This keeps the family together at meals, and vegetables and fruit, perhaps from their own garden, give variety. He warns physicians further not to be misled to recommend substitute foods without thorough knowledge of them.

Policlinico, Rome

July 14, 1918, 25, No. 28

68 *Bridge Flaps. I. Scalone.—p. 653.
69 Neurologic Centers. G. C. Riquier.—p. 656.
70 *Anglo-Saxon Medical Journalism. L. Verney.—p. 659.

68. **Bridge Flaps for Large Defects.**—Scalone reports success in promoting the healing of large wound areas by loosening up the skin around and cutting a long strip which is twisted around to bridge the defect, the free end sutured to the other side of the area. Sometimes a second flap is cut to suture to the first, thus leaving only three small triangles of the area uncovered. It is better not to scrape away the granulations; the flap is applied directly over them, after rinsing off any purulent secretion. He cuts the flap with the adipose tissue so that it will be thick enough. The free end is sutured to a space cut for it into sound tissue. Several flaps can be used, thus nearly covering the area with the pedunculated flaps bridging it in different directions. The sound skin can be stretched to bring it over the defect where the flap was cut. In one case of a large gap on the back of the hand, he bridged it with a flap of skin from the abdominal wall, but usually he takes the best nourished strip of skin available close by and cuts it with a broad base.

70. **Anglo-Saxon Medical Literature.**—The first instalment of Verney's article was summarized in these columns, August 17, p. 608. He here describes in detail different medical periodicals in England and America and in the British colonies, saying, "The *Journal A. M. A.*, the most widely read medical journal in the world, has a weekly issue of nearly 70,000; the *British Medical Journal* of at least 22,000, and the *Lancet* nearly as much. We will not be telling any secret when we say that the most widely distributed Italian medical journal, the *Policlinico*, has only about 10,000 subscribers." He remarks that the "most pronounced characteristic of the Anglo-Saxon medical journals is their practical tendency. The aim is to render immediately utilizable the results of scientific research. The articles are written in a simple, direct style which renders them easy to read even for those who know only the rudiments of English." He continued "Of course it happens in the Anglo-Saxon medical journals, as well as in the Italian, that the same names are found repeated in many journals. There are certain authors who write year after year, under many headings and in diverse forms or with few variations the same observations and the same lucubrations in journal after journal; they are victims of graphomania, and scatter their writings a little everywhere."

Verney concludes with the remark that the powerful development of the Anglo-Saxon medical literature arouses admiration, and that the development will probably continue in the near future on a still larger scale. "In Italy, since we have discovered Anglo-Saxon medical literature, we are watching its progress with growing sympathy. This is evident from the increasing amount of space given in the Italian journals to extracts from the English and American medical press. The medical press in Italy bears honorable comparison with it, although in many respects it has reached a stage of progress beyond the Italian. The Italians appreciate above all the practical value of the articles published; the complete and vast abstract system; the importance assigned to social medicine; the campaign against nostrums, and the editorial supervision over the advertising pages. With extreme satisfaction and without a shade of rivalry we hail these valuable features, deriving from them a wholesome and stimulating incentive to emulation."

Riforma Medica, Naples

July 6, 1918, 34, No. 27

71 Three-Day Fever. U. Gabbi.—p. 522.
72 Vaccine Therapy in Typhoid. M. Pennetta and G. Melosci.—p. 524.
73 *Senile Cataract. N. Scalinci.—p. 529.
74 The Danger of Tuberculosis in Factories. E. Tedeschi.—p. 531.

73. **Senile Cataract.**—Scalinci discusses whether it is better to attempt the extraction of an unripe senile cataract in the capsule or to attempt to ripen it artificially, when the disturbance in vision is prolonged and of a high grade. He describes a case to illustrate the fine effect realized by multiple puncture of the equatorial portion of the lens, repeated a week later. The cataract was ready for extraction a month afterward, and by the end of another month the woman of 61 was able to read the No. 2 type in De Wecker's book. The cataract had been years in developing and had not made any progress during the ten months following a preparatory iridectomy. He has always been able to follow

the puncture procedure with the extraction of the cataract in from eight days to five weeks. This artificial ripening of the cataract is called for mainly in the dyscrasic type of senile cataract.

Rivista di Clinica Pediatrica, Florence

June, 1918, **16**, No. 6

75 *Incomplete Form of Pituitary Deficiency. M. Pincherle.—p. 281. To be continued.
76 *The Fifth Cusp. G. Guidi.—p. 299.

75. **Pituitary Deficiency.**—In this instalment of his study of the masked hypophysis syndrome, Pincherle describes four cases of diabetes insipidus in boys of from 7½ to 16 years old. The physical development was backward in all, but satisfactory progress was evident under systematic treatment with pituitary extract, continued for months.

76. **The Fifth Cusp.**—Guidi refers to the anomaly described by Sabouraud as a sign of inherited syphilis. He found the fifth cusp in nineteen of 150 children examined but nothing was found to suggest a syphilitic taint in any instance.

Archivos Españoles de Pediatria, Madrid

May, 1918, **2**, No. 7

77. *Inversion of Bladder in Infants. E. N. Coronas.—p. 257.
78 Astasia-Abasia-Phobia in Child under Three. J. C. M. Fournier. —p. 265.
79 *Chloroma. A. Catalina.—p. 277.
80 Influenza in Children. C. S. de los Terreros.—p. 314.

77. **Inversion of Bladder in Infants.**—Coronas gives an illustrated description of complete inversion of the bladder through the urethra in two female infants of 13 and 18 months. Both were breast fed, but fed very irregularly and were given inappropriate food in addition from the very first. Each had a history of gastro-intestinal derangement and enteritis, with other signs of physical inferiority and tendency to rachitis. One had been given four spoonfuls of castor oil, fractioned, in twenty minutes, and this had been followed by prolapse of the rectum which had kept up for two weeks, when the inverted bladder appeared in the vulva. It protruded so extensively that the mouths of both ureters were exposed. In two similar cases on record in infants, whooping cough was evidently a factor in one and enterocolitis in the other. The inverted bladder was easily restored to place in one of his cases, but it fell out again as soon as it was no longer supported, demonstrating the futility of all measures except a radical operation. In the other case the tumor was hard to reduce, even under chloroform, but once reduced, there was no further trouble from it. The operation consisted in abdominal cystopexy, on the same principle as abdominal fixation of the uterus, using silk. In both cases there was incontinence of urine for a long time but finally the sphincter regained its function.

79. **Chloroma in Boy of Five.**—Catalina's patient presented left exophthalmos and several bunches in the skull and abdomen. One of the bunches in the skull had suppurated; the pus issuing from it was green. The spleen was much enlarged and the blood with 4,000,000 reds and 14,400 whites showed 30 polynuclear neutrophils, 25 large mononuclears and 21 eosinophils per 100 leukocytes. Benzol and the roentgen rays merely reduce the number of leukocytes, and this alone does no good in such cases. Small doses of arsenic and heliotherapy seem the only promising measures.

Prensa Medica Argentina, Buenos Aires

May 30, 1918, **4**, No. 36

81 *Kinetic Surgery. G. B. Arana.—p. 535.
82 Banti's Disease with Syphilitic Origin. L. L. Resio.—p. 539.

81. **Kinetic Amputations.**—Arana has now an experience with thirteen cases in which he applied in amputation the principle of kineplastics, for vitalization of the artificial limb. He reviews Vanghetti's suggestions in this line to utilize muscles, tendons, nerves, vessels and skin to make the most of the motor function left in them. Of course the muscle has to be perseveringly trained to its new task. The simplest form is the loop formed by the muscles and tendons below the stump of the bone, the opening in the loop being lined with skin. The motor force in the muscle loop imparts motion to the prosthesis or to a tool held in the loop. Another application of the principle is what is called the key, the muscles of the stump being formed in the outline of a hook, allowing a space in which a tool or other object can be held. Arana's illustrations show these various types, including one in which the muscles are formed into two of these hooks. The loops can be made on the side of the stump. Theoretically any number of key hooks or loops are possible, but in practice two seem to be the limit. Union of the antagonist muscles gives a better hold.

Revista de Medicina y Cirugia Practicas, Madrid

June 21, 1918, **121**, No. 1511

83 Sheet Lead Effectual Treatment of Varicose Ulcers. A. Ledo.—p. 321.

Revista de Medicina y Cirugia, Havana

May 25, 1918, **23**, No. 10

84 Electric Fulguration Treatment of Prostatism. D. Geiringer and J. Campuzano.—p. 263.
85 Small Epidemic of Rubeola. V. P. Castello.—p. 268.

Revista Sud-Americana de Endocrinologia, etc., Buenos Aires

April, 1918, **1**, No. 4

86 Case of Anaphylaxis from Injection of Lecithin. S. Dessy.—p. 95.

Semana Medica, Buenos Aires

May 9, 1918, **25**, No. 19

87 Case of Porokeratosis with Black Pigment and Atrophy. N. V. Greco.—p. 527.
88 Differential Reactions of Stovain. J. A. Sanchez.—p. 532.
89 *Thready Pulse Sign of Perforation in Typhoid. G. Giacobini.—p. 535.
90 *Prophylaxis of Tuberculosis. E. R. Coni.—p. 536.
91 Physiologic Rôle of Sulphur. E. Fynn.—p. 539.

89. **Filiform Pulse in Typhoid.**—Giacobini has noticed that when the temperature drops in typhoid fever, the pulse becomes at the same time characteristically filiform when the hypothermia is the consequence of perforation of the bowel. With hemorrhage, the temperature may drop likewise but the pulse does not become thready in the same way. This filiform pulse with sudden hypothermia calls for immediate operation, even when there are no pains or other symptoms suggesting peritonitis, no tympanism, vomiting or special tenderness. The filiform pulse, he declares, points unerringly to a perforation as he has established in a large number of cases.

90. **Prophylaxis of Tuberculosis.**—Coni relates that as early as 1893, Argentina took the lead in sending children to a seashore sanatorium as a means of warding off or curing tuberculosis.

Siglo Medico, Madrid

June 15, 1918, **65**, No. 3366

92 Bladder Calculi. A. P. Martin.—p. 463.
93 Demography of Prevailing Epidemic. L. Lasbennes.—p. 466.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

June 1, 1918, **1**, No. 22

94 Centennial of F. C. Donders. G. van Rijnberk.—p. 1493.
95 Scalp Disease from Microsporon Lanuginosum. D. Muijs.—p. 1497.
96 *Necrotic Scarlatinal Lymphadenitis. A. Welcker.—p. 1509.
97 Menstruation Eosinophilia. D. Klinkert.—p. 1517.
98 *Abnormally Short Umbilical Cord. F. M. G. de Feyfer.—p. 1522.

June 8, 1918, **1**, No. 23

99 *The Weight Curve in the Tuberculous. P. J. L. de Bloeme. —p. 1558.
100 *Acute Myeloblast Leukemia. L. S. Hannema.—p. 1567.
101 *Morphin and the Parasympathetic System. E. C. van Leersum. —p. 1575.
102 Urticaria from Muscular Exertion. N. A. van de Roemer. —p. 1579.

96. **Necrotic Scarlatinal Lymphadenitis.**—Welcker remarks that every epidemic of scarlet fever has its special features; and in a recent epidemic he encountered eight cases of destructive processes in the lymph glands of the axilla or neck. Only one of the eight children recovered; they were all under 5 and the disease was of a specially severe type from the first. The destructive adenitis developed a few days after the eruption; the infiltration spread through the adjoining tissues, with the hard swollen gland in the center. The

process in the neck extended down to the esophagus and trachea, involving all the soft tissues, the dry necrosis destroying muscles, vessels and skin indiscriminately. In the one case of recovery, the process lasted for months before all the devitalized tissues had been cast off. Several cases are recorded in the literature in which erosion of a vessel had entailed fatal hemorrhage, or erosion in the pharynx allowed the escape of food. Aneurysms have also been described as a sequel, as also the spread of the necrotic process to the pleura, lung or pericardium.

Most writers say that, as a rule, the process comes to suppuration which can be cleared out and the whole arrested. But Welcker's experience has not been so favorable. In all his eight cases the clinical picture resembled that of bubonic plague. Cutting into the infiltrated region disclosed merely a patch of mummified tissue. The incision in the one case coming to recovery may have contributed to this outcome, but more probably it was a milder form of secondary infection, manifested further in suppurating arthritis in the elbows and the shoulder on the other side.

98. **Overshort Umbilical Cord.**—De Feyfer reports two cases in which delivery was hampered by the shortness of the umbilical cord. Considerable force had to be used to extract the child, tearing the cord in one case; it measured 22 cm. Along with the labor pains, the women had complained of spontaneous pains in the abdomen during the parturition.

99. **The Weight Curve in the Tuberculous.**—De Bloeme gives the annual weight curve in the inmates of two sanatoriums for lung disease in adults and children. He compares his findings with similar figures published by sanatorium physicians in America and elsewhere. He found that in both adults and children the gain in weight was nearly or over twice as much between May and October as in the rest of the year. This tendency to greater gain in weight during this part of the year should be borne in mind in estimating the effect of dietaries.

100. **Acute Myeloblast Leukemia.**—Hannema reports the clinical and necropsy findings in a factory worker of 39 who had been exceptionally healthy until July, 1917, when ulcerative febrile stomatitis developed, with anemia. He entered the hospital the third month. The reds then were over 2 million, the whites 10,000, but in five days the whites ran up to 30,000 and the blood picture was that of aplastic anemia, myeloblasts, myelocytes and promyelocytes forming 70 per cent. of the leukocytes. He died at the end of the third month, with nothing to suggest pathologic hemolysis at any time, and no swelling of lymph glands. Ziegler has reported a similar case with 18,200 whites two weeks after the onset of a pericarditis. Then suddenly the whites ran up to 240,000, with 65 per cent. myeloblasts and myelocytes, and the necropsy findings showed the same leukemia picture as in Hannema's case.

101. **Action of Morphin on the Vagus.**—Van Leersum's charts demonstrate that, besides its action as a narcotic, morphin has a decided direct action on the center for tonus of the parasympathetic system.

Hospitalstidende, Copenhagen

June 19, 1918, **61**, No. 25

103 *Etiology of Orthostatic Albuminuria. C. Sonne.—p. 817.
104 Disappointing Results from Parenteral Injections of Milk in Treatment of Eye Diseases. K. K. K. Lundsgaard.—p. 826.
105 *Diastase Content of Blood and Urine. E. Winsløw.—p. 832.

103. **Orthostatic Albuminuria Occurs Only in Left Kidney.**—Sonne agrees with Jehle that the lordosis in the erect position is the cause of the orthostatic albuminuria, as a rule. But he explains that the lordosis affects the circulation only in the vein from the left kidney. This vein is longer and lies higher than the right renal vein, and it passes across the spine just behind the taut aorta. The lordosis forces it against the aorta, as he shows in detail. This compression readily explains the circulatory disturbance in the connected kidney, with its resulting albuminuria. If this assumption be correct, then orthostatic albuminuria can occur only in the left kidney, and his catheterization of the ureters in ten patients with orthostatic albuminuria showed that the albuminuria was exclusively on the left side in all. In six other patients the albuminuria was a sequel of acute nephritis, and in all these cases, of course, the albuminuria was bilateral.

105. **Importance for Diagnosis and Prognosis of Diastase in Blood and Urine.**—Winsløw emphasizes that with acute disease of the pancreas, determination of the diastase is a simple and reliable method for the diagnosis, if complicating diabetes and nephritis can be excluded. With chronic disease of the pancreas, the diastase content is an index of the development of the process. It also throws light on the prognosis with diabetes, to a certain extent. With kidney disease, determination of the diastase is a reliable and very instructive diagnostic measure. Other methods of investigating pancreas functioning—such as Sahli's glutoid reaction, Schmidt's nucleus test, and the olive oil meal have not stood the test of time, or else, like the duodenal tube, they are too disagreeable for common use. But the diastase can be determined rapidly and reliably, without annoying the patient. He reviews the literature on the subject and describes the technic, reiterating that all glycogen-containing organs produce diastase. The diastase is estimated by the quantity of a 1 per thousand solution of starch which 1 c.c. of the blood or urine being examined will digest in thirty minutes at a temperature of 38 C.

He uses a set of ten or twelve test tubes and in all after the first one he puts 1 c.c. of a 1 per cent. solution of sodium chlorid. In the empty glass No. 1, and in No. 2 is placed 1 c.c. of the fluid to be tested. The contents of glass 2 are well mixed, and 1 c.c. is then transferred from this to glass 3, and so on, the glasses thus containing in turn 1 c.c.; 0.5; 0.25; 0.125, and so on, of the fluid under investigation. Then into each glass in turn is dropped 2 c.c. of the 1 per thousand solution of starch. After the set of tubes has been kept on the water bath at 37 C. for half an hour, a few drops of an iodin solution are added to each glass, and the last glass that does not show a permanent blue tint is the index. For example, if this is glass 3, then 0.25 c.c. digests 2 c.c. of the 1 per thousand solution of starch in thirty minutes; 1 c.c. would digest 4 times as much, and thus we say that the diastase figure is 8. Or, to express it in a formula,

$$d\,\frac{38\text{ degrees}}{30\text{ minutes}}=8.$$

In normal conditions the diastase content of the blood serum is from 8 to 16. In pathologic conditions it ranges from 128 to 1,024 or more. In the urine, the normal range is from 16 to 32. In his six cases of amyloid degeneration of the kidney, Winsløw found constantly normal diastase figures. Specimens can be kept on ice for a week or at room temperature for several days without modifying the diastase content; a film of toluol will protect against putrefaction while it does not affect the diastase action. In the one case in which the blood serum showed a jaundice tint, the diastase content was normal. With disease in the pancreas from obstruction of its outlet, there is retention of diastase; when approximately normal conditions are restored, the excess of diastase is thrown off through the kidneys.

Ugeskrift for Læger, Copenhagen

June 20, 1918, **80**, No. 25

106 Quinin as Substitute for Pituitary Extract in Obstetrics. A. G. Lauritzen.—p. 979.

June 27, 1918, **80**, No. 26

107 Calcium in Therapeutics. J. Buchholtz.—p. 1005.
108 Eczema from Contact with Fertilizer. P. Trautner.—p. 1016; A. Larsen.—p. 1017; O. Olsen.—p. 1018.
109 *Poisoning with Mineral Oils. Bjerrum and Chrom.—p. 1023.

109. **Poisoning with Mineral Oil.**—Bjerrum remarks that liquid paraffin and petrolatum are not poisonous, but that "petroleum" (probably he means kerosene) is very toxic for children. In a recent case, a child 15 months old died in a few hours after drinking a small amount of petroleum, presumably 4 or 5 gm. There had been violent vomiting immediately but the child died with symptoms of heart failure. Chrom comments on this case that Straume advises against the use internally of liquid paraffin and petrolatum as in his experiments on cats these practically always induced diarrhea and loss of appetite, together with somnolency. He found the lethal dose of petrolatum for a cat was from 72 to 86 gm. per kg. of body weight; the lethal dose of liquid paraffin was from 27 to 107 gm. Stubenrath, on the other hand, reported that he found them harmless when of American make. In any event, Chrom protests against the use of mineral oils in any form in the preparation of food.

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THE FIRST YEAR OF THE SECTION ON GASTRO-ENTEROLOGY AND PROCTOLOGY *

ANTHONY BASSLER, M.D.
NEW YORK

The activities manifested at the first meeting of this section last year proved the wisdom of the House of Delegates in its establishment. Constantly spreading interest in it since that time is reason enough for its necessity and assures a progressive success. Although many of our gastro-enterologists and proctologists are now serving the country in efficient war work, the program, because of the rapidly increasing numbers of men interested in these fields, in quality and extent is but a small part of what was easily possible. Throughout the breadth of our beloved country, general practitioners, internists, surgeons and others are keenly in search of knowledge on these subjects, and they feel that this is a forum of first importance in which to help them. The House of Delegates builded well and it seems a pleasure on the part of many Fellows of the Association to prove it. In doing this no outside organization did other than its full share collectively and individually, and as your chairman, it pleases me to state that the American and Southern Gastro-Enterologic Associations, the American Proctologic Society and others have shown a most admirable spirit, a spirit of true fellowship of the highest fraternal type.

You will remember that Dwight Murray in the chairman's address last year said:

> It seems to me that during our discussion of the symposiums much can be said which would be of great benefit to the military service and the life of the boys in the Army as to the care of their digestive and eliminative tracts. Advice along this line could come from no more competent body of medical men than are in this section of the American Medical Association, and I believe it would be pertinent, notwithstanding the fact that we shall have many good physicians as officers of the Army, and without doubt it would be welcomed. Nothing could make for greater efficiency in our Army than the keeping of the gastro-enterocolonic tract in a normal condition. Possibly the offering of such advice at the present time may be too late, but I would recommend the appointment of a committee of five to formulate rules for the care of the gastro-intestinal tract. Such committee should deal especially with nutrition and elimination, and submit its report to the general committee of national defense, if it is found that the medical advisory board would welcome such advice.

DEPARTMENT OF GASTRO-ENTEROLOGY IN MEDICAL SERVICE OF THE ARMY

As a result of this, a committee of five was appointed, consisting of Dwight Murray of Syracuse, M. E. Rehfuss of Philadelphia, William Gerry Morgan of Washington, Dudley Roberts of Brooklyn and William M. Beach of Pittsburgh. After indefatigable labor and much expense and time, they succeeded in having the Army authorities recognize gastro-enterology and proctology, with the appointment of men in the cantonments and for oversea service. It must be to our credit that the responses to the requests that went out were prompt, and soon practically all of the positions were filled with qualified men.

Thus it is plain to all that the two greatest epochs in the history of gastro-enterology and proctology that history records anywhere in the world have been accomplished in little more than a year's time: first, the recognition of this field of work by the largest national medical organization of any country in the world in the establishment of a separate section for it, and second, a recognition by the Army authorities of the fact that men so trained would be valuable additions to the Army medical staff in caring for the lads we are so proud of today. To the men who have had to do with bringing these two events about much credit is due.

DUTY OF THE PHYSICIAN IN WAR

In this moment of the nation's fight for right principle of free government, it would sadly behoove me to narrate on matters of medical topics. Beyond anything that these might be is the fact that we are at war with a country which seeks in medieval ways to fasten on the world the rule of "might makes right" by advanced methods of destruction and after years of preparation for it. Nothing that the human being holds dear—his work, his health and life, his loves and affections, his freedom, his spirtuality, his achievements of the past, his country—nothing must be left him. The heart, soul and body of another counts for nothing against the sordid desire of this viciousness, and when this is brutally and ruthlessly carried out in antithesis of all laws, religions and ethics, there is nothing to do but to fight for the right, and we ennoble ourselves in doing so. God in his mercy will see us safely and securely through, but while we are passing through, the medical profession of America must do its share. At no time should we be the servants of the people and the country as liberally as at present. Our work in the war is tremendously important, and every one of us with real blood in his body must feel this. The country needs more medical men, and every

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* Chairman's address, read before the Section on Gastro-Enterology and Proctology at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

one who possibly can should serve. To you, gentlemen of the section, remember that a commission in this great work awaits you, an opportunity to serve your country and your fellow man, and the noblest of all professions.

ANOMALIES OF THE BILE DUCTS AND BLOOD VESSELS

AS THE CAUSE OF ACCIDENTS IN BILIARY SURGERY *

DANIEL N. EISENDRATH, A.B., M.D.
CHICAGO

The rapid increase during recent years in the number of operations on the gallbladder and bile ducts has been accompanied by the report of a series of cases of injuries to the ducts and of severe hemorrhage from vessels in their vicinity.

This subject is of the utmost importance to every surgeon and merits a closer study of the causes of such accidents and of their prevention in the future.

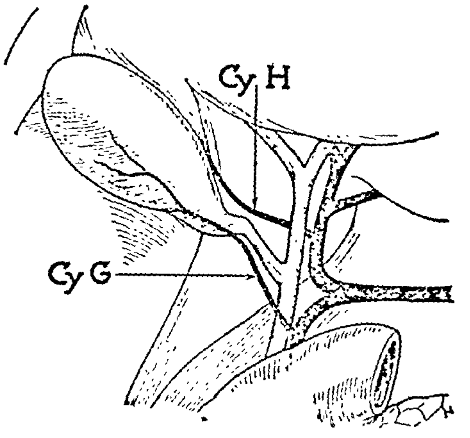

Fig. 1.—Normal angular mode of union of a short cystic duct with the hepatic duct well above upper border of duodenum. Specimen also shows two separate cystic arteries, one (*Cy H*) arising from the common hepatic artery and passing to the neck of the gallbladder, the second, or accessory cystic artery (*Cy G*), arising from the gastroduodenal artery and crossing the common duct. If one does not remember the possibility of such an accessory cystic artery, severe hemorrhage may result, and in the effort to grasp the bleeding vessel the common duct or the hepatic duct may be injured.

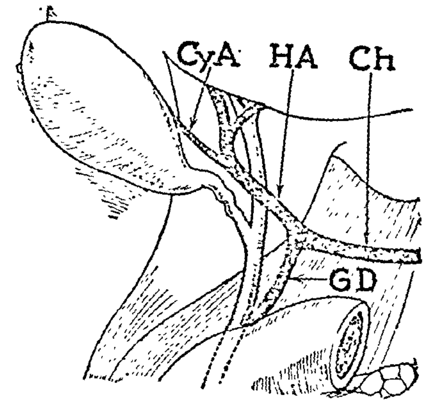

Fig. 2.—Anomaly of the hepatic artery (*H A*). Either the main hepatic or only the right branch passes across the front of the hepatic duct, making a wide arch toward the right before giving off the cystic artery (*Cy A*). The hepatic artery is thus liable to be injured tangentially in mobilizing the neck of the gallbladder during cholecystectomy. *C H*, common hepatic trunk or artery which divides into the hepatic artery proper (*H A*) and the gastroduodenal artery (*G D*).

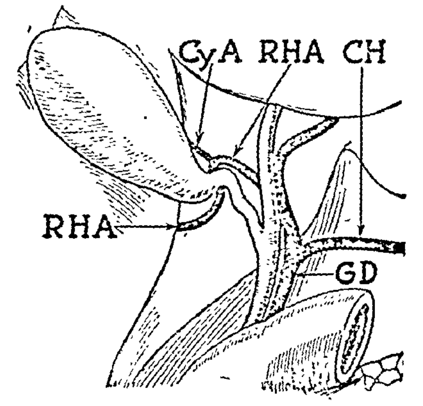

Fig. 3.—Right hepatic artery (*R H A*) runs parallel to cystic duct and then arches behind it at neck of gallbladder to enter right lobe of liver. Before doing so it gives off the cystic artery (*Cy A*) at neck of gallbladder. This anomaly is of great importance because the relatively large hepatic artery (size of radial in our specimen) may be injured during mobilization of neck of the gallbladder or of the cystic duct. *C H* and *G D*, as in Figure 2.

Eliot[1] has recently collected all of the published case reports of injuries of the bile ducts during operation. Twenty-one of twenty-three accidents occurred during cholecystectomy, and the remaining two during pyloric resections for cancer. There were three types of injury to the hepatic and common ducts: (*a*) removal of a portion of the wall; (*b*) complete division, and (*c*) removal of the junction of the cystic and hepatic ducts.

The most important factors in the etiology of such injuries of the ducts are:

1. The lack of knowledge on the part of the majority of surgeons that variations in the mode of union, course and length of the cystic, hepatic and common ducts are far more common than our textbooks on anatomy have led us to believe.

2. The presence of anomalies in the mode of origin and course of the cystic and hepatic arteries resulting in hemorrhage, and the inclusion of the bile ducts either in the grasp of the artery forceps or in a ligature applied around the bleeding point.

3. The obliteration of landmarks as the result of inflammatory changes.

We are all familiar with the classical description in every textbook of anatomy, of the acute angle (Fig. 1) formed by the junction of the short cystic duct with the hepatic duct, and also with the mode of origin of the cystic artery from the right hepatic artery (Figs. 1 and 5) and its entrance into the gallbladder at the junction of its neck with the cystic duct. If these time honored relations were present, as we were formerly taught, in every person, no accidents would occur; hence we are greatly interested with the exceptions to the rule.

Our knowledge of the anomalies in the distribution of the blood vessels of this region is in great measure due to the investigations of Rio Branco[2] and Descomps,[3] while the first to call attention to variations in the mode of union of the cystic and hepatic ducts was Ruge,[4] whose work was confirmed by Kunze,[5] Descomps[3] and myself.

The most important vascular anomalies, according to Rio Branco and Descomps, are the following:

1. *Hepatic Artery* (*Right*).—(*a*) In 12 per cent., the main or the right hepatic artery crosses the front of the hepatic duct (Fig. 2).

(*b*) In 10 per cent. (Fig. 3), the right hepatic artery runs parallel to the cystic duct and might be injured during cholecystectomy.

(*c*) In 8 per cent., a right hepatic artery lying behind the hepatic duct makes a curve or arch toward the right of the hepatic duct and might easily be injured tangentially.

2. *Cystic Artery.*—(*a*) Anomalous origin of the cystic artery is present in 12 per cent. Of chief interest is its origin from the gastroduodenal artery, entering the gallbladder after crossing the common duct obliquely (Fig. 1).

(*b*) There may be two cystic arteries (Fig. 1). One artery may arise from the right hepatic, the other from the gastroduodenal or one from the right hepatic and the other from the common hepatic, or, finally, both from the left hepatic. Bleeding may occur if the second cystic artery is overlooked, mistaken for a strand of fibrous tissue, and divided before ligation.

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* From the Department of Surgery, Rush Medical College.

* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

[1] Eliot, Ellsworth, Jr.: Surg., Gynec. and Obst., 1918, **26**, 81.

[2] Rio Branco: Surgical Anatomy of the Coeliac Axis, Paris, G. Steinheil, 1912.

[3] Descomps: Bull. de la Soc. anat., 1910, **4**, 328; Recherches d'anatomie chirurgicale sur les arteres de l'abdomen, le tronc coeliaque, Paris, G. Steinheil, 1910.

[4] Ruge, E.: Arch. f. klin. Chir., 1908, **77**, 47-78.

[5] Kunze, H.: Beitr. z. klin. Chir., 1911, **72**, 491-504.

(*c*) In the relation of cystic artery to hepatic duct, in 27 per cent. the cystic artery arises on the left side of the hepatic duct and must cross in front of it (Fig. 4) to reach the gallbladder.

3. *Gastroduodenal Artery.*—This is of importance in common duct operations.

(*a*) In 38 per cent., this artery lies in a plane anterior to the common duct at the level of the head of the pancreas.

(*b*) In 20 per cent., either the main artery or a branch (Fig. 5) crosses in front of the common duct and may be injured during supraduodenal choledochostomy.

ANOMALIES IN THE MODE OF UNION OF THE CYSTIC AND HEPATIC DUCTS

The first publication on the various types in the modes of union of the cystic and hepatic ducts, and the relative frequency of each type, is that of Ruge in 1908.

Before giving the results of Ruge's observations and those of Kunze and Descomps and of my own work, it is necessary to explain certain terms. By normal angular mode of union, or Type 1, we refer to the acute angle (Fig. 4) formed by the cystic with the hepatic ducts when they unite to form the common duct. This type, up to the time of the publication of Ruge's paper, was thought to be the only form of mode of union of the two ducts. Type 2, or parallel mode of union, refers to those cases in which the cystic runs parallel to the hepatic duct for a variable distance, the two ducts being held together by a more or less firm connective tissue septum. If the two ducts run parallel for only a short distance, as, 2.5 cm., it is called the "short parallel" type, while if they take a parallel course for a longer distance, as, 5 cm. or more, the term "long parallel" type is applied. In my own observations I have used the term "short parallel" for those cases (Fig. 6) in which the two ducts run parallel to the upper border of the duodenum, and "long parallel" for the cases (Fig. 7) in which the two ducts run parallel until they unite a short distance above the ampulla, that is, within the head of the pancreas. The third of the chief divisions of modes of union is called the "spiral type." Here the cystic duct winds either around the front (Fig. 8) or the posterior surface of the hepatic duct (Fig. 9) before entering it to form the common duct. Thus the cystic duct can describe either a quarter, half, three-quarters or complete spiral around the hepatic duct.

Both of these two variations—the parallel and the spiral type—are, as we shall see, of the utmost importance from a surgical standpoint. Kunze failed in his thirty-nine cases to find any variations of the spiral type.

I became interested in the subject of anomalies of the blood vessels and bile ducts after a severe hemorrhage occurred from an anomaly of the cystic artery during a cholecystectomy, and decided to study the relative frequency at least of the modes of union in a larger number of individuals than any previous investigator. I have observed the various modes of union of the cystic and hepatic ducts in 100 necropsies, the material for which I obtained through the cooperation of the Pathological Department of the Cook County Hospital. My results can be best understood when compared with those of Ruge, Kunze and Descomps in the accompanying table. It is necessary, however, to call attention to the fact that my own statistics were the result of 100 observations, while those of the others were considerably smaller, namely, Ruge 43, Kunze 39 and Descomps 50; hence my own percentages are of more value as to relative frequency of the various types of anomalies.

A study of this table reveals the fact that the observations of Descomps and my own agree very closely. I feel confident that the spiral type does not occur as often as Ruge asserts, and that Kunze must have

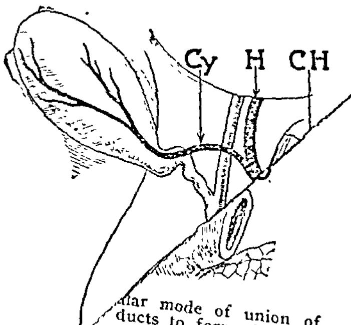

Fig. …lar mode of union of the cy… ducts to form the com- mon… …ic artery (*Cy*) arises from th… artery (*H*) in the normal …sses the anterior surface of …ct. Note triangle formed by …with hepatic and cystic ducts. …*D*, as in Figures 2 and 3.

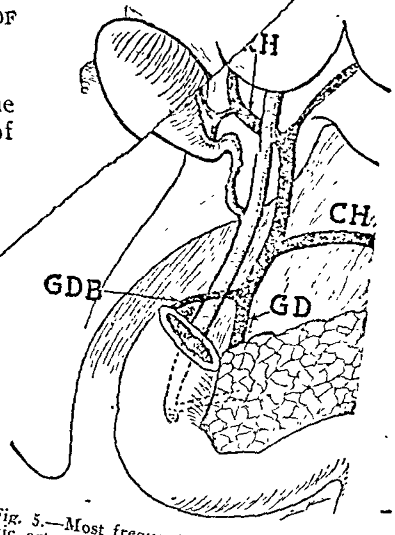

Fig. 5.—Most frequent mode of origin of the cystic artery and also of an anomalous branch of the gastroduodenal artery crossing the common duct. The cystic artery usually arises from the right hepatic artery (*R H*) shortly after the latter passes behind the hepatic duct. Note branch (*G D B*) of gastroduodenal artery (*G D*) crossing common duct near its lower end. *CH*, as in Figures 2, 3 and 4.

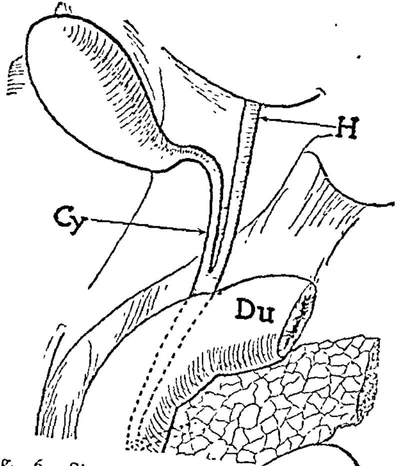

Fig. 6.—Short parallel type of mode of union of the cystic and hepatic ducts. The cystic duct (*Cy*) runs parallel to the hepatic duct (*H*) either to the upper border of the duodenum or to the upper border of the pancreas. The two ducts are firmly bound together by fibrous tissue.

FREQUENCY OF MODES OF UNION OF CYSTIC AND HEPATIC DUCTS

	Normal Angular		Parallel		Spiral	
	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.
Ruge (43 cases)	14	33	12	29	16	38
Kunze (39 cases)	20	51	19	49	..	..
Descomps (50 cases) ..	40	80	6	12	4	8
Eisendrath (100 cases).	75	75	17	17	8	8

overlooked some examples of this type if he did not find any. Our own specimens were prepared by injecting a 15 per cent. bismuth paste while warm through the fundus of the gallbladder and causing it to distend the cystic, main hepatic and common ducts so that dissection could be more readily carried out.

Roentgen-ray plates were also made of the modes of n, a far more accurate method than any previous ver had employed.

One of our specimens showed a ondition of great surgical interest that has not been des ribed elsewhere. In this individual the ducts from the right and left lobes of the liver did not unite until me distance beyond the hilum. The cystic duct was und lying (Fig. 10) in the fork between the right and l hepatic ducts and entered the anterior surface of the mmon hepatic duct to form the common duct.

I did not study the anomalies of he blood v because this subject had been thoroughly covere ls Rio Branco by Descomps. W did, however, encounter many of the anomalies described by them as being of importance in biliary surgery (Figs. 2, 3, 4 and 5).

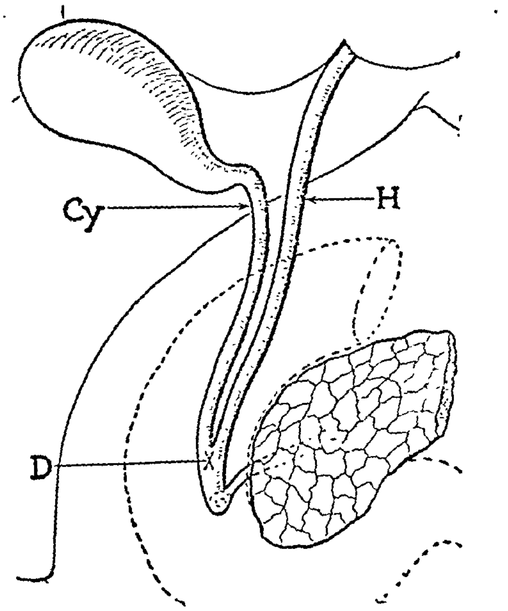

Fig. 7.—Long parallel type of mode of union of cystic and hepatic ducts. In this type the hepatic (*H*) and cystic (*Cy*) ducts run parallel to within a short distance of the ampulla of Vater. The common duct (*D*) varies in length from half an inch to an inch, lying usually within the head of the pancreas.

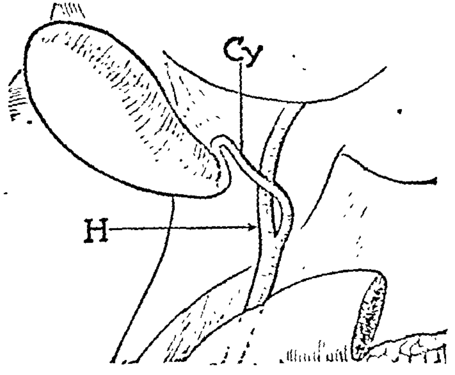

Fig. 8.—Anterior spiral type of cystic duct. The cystic duct (*Cy*) crosses the anterior surface of the hepatic duct (*H*) and then enters its left surface to form the common duct.

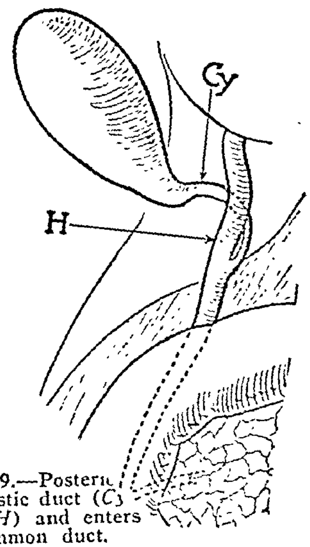

Fig. 9.—Posteri f cystic duct. The cystic duct (*C* the hepatic duct (*H*) and enters ts to form the common duct.

Of what interest are these anomalies of the bile ducts and blood vessels to the surgeon? I am firmly convinced that a knowledge of their existence and the ability to recognize them during operations will prevent the majority of the accidents that have been reported. No doubt there are many other instances of unexpected severe bleeding and injuries of the ducts that have escaped publicity.

CONCLUSIONS

Anomalies of the blood vessels and mode of union of the cystic and hepatic ducts are of importance to the surgeon because the following conditions may occur:

1. *Blood Vessel Anomalies.*—(*a*) When the right hepatic artery runs close to the cystic duct and neck of the gallbladder as in Figure 3, or when the hepatic artery arches far to the right of the main hepatic duct, a segment of the wall of the right hepatic artery may be torn off during cholecystectomy.

(*b*) When the right hepatic artery (Fig. 2) or the cystic artery (Fig. 4) crosses the front of the main hepatic duct, they may be torn during removal of calculi from the cystic or hepatic ducts. The same is true when the main trunk of the gastroduodenal artery or a large branch crosses the lower end of the common duct (Fig. 5).

(*c*) When the cystic artery arises from the gastroduodenal (Fig. 1), it can be easily overlooked and severe hemorrhage occur. When two cystic arteries are present, one of them can be divided unless the possibility of such an anomaly is thought of.

2. *Bile Duct Anomalies.*—(*a*) The short parallel type (Fig. 6) is chiefly of interest because such a cystic duct is firmly adherent to the hepatic duct, and rough manipulation may tear off a portion of the wall of the adjacent hepatic duct. The short parallel type was found in eleven of 100 bodies.

(*b*) The long parallel type (Fig. 7) is of interest for the reason just given and in addition thereto for two others: first, a calculus lying in such a long duct may compress the hepatic duct and give rise to obstructive symptoms like those of a calculus in the hepatic common duct, and tand, our experimentha rk[6] has shown ct may dilate and form a new gallbladder and be t recurrence of symptoms. The long para found in six of 100 bodies.

(*c*) The spiral types (Figs. 8 and 9) are of a first, because a calculus lying in them may co the hepatic or common duct and simulate the pre of calculi in these ducts; secondly, too strong trac of the gallbladder during cholecystectomy may te off such a spiral duct and the torn proximal end wi be difficult to identify; finally, if we wish to remove calculi from such a spiral duct or wish to excise the duct itself, we must bear in mind that the duct lies in the closest proximity to the hepatic duct throughout its course. I have found the anterior spiral type in five and the posterior spiral type in three of 100 bodies.

(*d*) The common duct is extremely short in both the short and long parallel types, especially in the latter, varying in length from 1 to 2.5 cm. The common duct varies greatly both in length and caliber in normal individuals.

30 North Michigan Avenue.

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[6] Eisendrath, D. N., and Dunlavy, H. C.: The Fate of the Cystic Duct after Cholecystectomy: An Experimental Study, Surg., Gynec. and Obst., 1918, **26**, 110.

ABSTRACT OF DISCUSSION

Dr. William D. Haggard, Nashville, Tenn.: We are encountering so many pathologic conditions in the gallbladder and ducts that it behooves us to be on our guard for these abnormalities. We ought to be very careful of the common duct itself, because it can be injured so easily, and sometimes you can hardly explain how. In one case we had a rather small gallbladder and we took a little bulging to be the ampulla, of which Dr. Eisendrath spoke. It was opened accidentally and bile and stones escaped. It was so large that it appeared to be the gallbladder. I should not have believed such a condition possible. In the meantime the gallbladder had been amputated and the duct cut loose to the liver. Fortunately, after removing the obstruction at the ampulla of Vater, we were able to unite it to the cut divisions of the two hepatic branches.

Dr. E. E. Montgomery, Philadelphia: I had one experience in which a patient had undergone a cholecystectomy, and subsequently a calculus of some size formed in the remnant of the cystic duct. Such an occurrence emphasizes what we have heard as to the importance of the removal of the cystic duct flush with the common duct, thus preventing the existence of a stagnation of the flow.

Dr. J. A. Attridge, Port Huron, Mich.: I had a case in which I could not find any gallbladder. The patient had symptoms of obstruction and I found two stones in what I presumed to be the common duct. We were able to remove them, but we could find no evidence whatsoever of the gallbladder. In looking up the literature at my command I find only three such cases reported.

Dr. Daniel N. Eisendrath, Chicago: A stone in a cystic duct lying parallel to the hepatic duct can compress the common duct and cause symptoms simulating those of obstruction to the common duct. This is mentioned in one of the cases of the same form of anomaly referred to by Kehr in his book. I could not take up in this paper the subject of abnormalities of the gallbladder. We did not encounter any of the unusual types of gallbladder mentioned in the discussion. There are statistics on the absence of the gallbladder, but the percentage of its occurrence I do not know. We have all sorts of abnormalities of the gallbladder and I encountered one not long ago which may be of interest to you. In this instance a diverticulum of the gallbladder projected from the main portion of the gallbladder and contained fifty-six stones. The accessory hepatic ducts emptied not in their normal manner into the main hepatic duct, but into the gallbladder itself, which is very unusual.

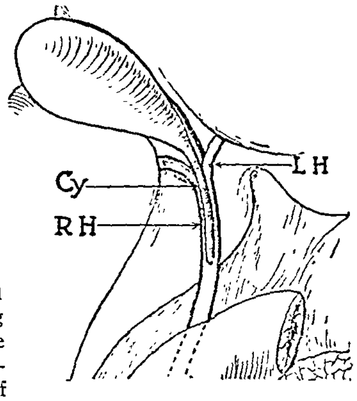

Fig. 10.—Unusual mode of union of cystic and hepatic ducts. Right (*R H*) and left (*L H*) hepatic ducts unite far beyond the liver, and the cystic artery passes through the fork between the two branches of the main hepatic duct. The cystic duct (*Cy*) enters the anterior surface of the common hepatic duct.

Effect of Habit in the Choice of Food.—Established habits in the choice of food are not very readily changed. When a new dietary is adopted in opposition to the dictates of appetite and pursued under protest, an unconscious reduction of intake may be expected. Some loss of weight may follow, ut equilibrium at a new level will ordinarily be established. w of us have discerned the simple principle to which Lusk lately called attention; that we can be large people, ained by large rations, or much smaller people with h lighter requirement. Whether the reduction is to sired or not depends on the original condition. For able fraction of the adult population weight reduc- ulated to add to the expectations of life.—Percy *alth News.*

THE THERAPEUTICS OF TETANUS*

HERMANN B. GESSNER, M.D.

NEW ORLEANS

The measure of the value of therapeutic methods must necessarily be the clinical results. Too often conclusions relative to these results are hastily formed on the basis of a small number of cases. This is especially true of tetanus.

In order to form a just estimate of the relative value of the several methods of treatment of this disease in civil practice, I have studied 427 case reports from the records of the Charity Hospital of Louisiana located in New Orleans. From among these cases, recorded in the years from 1906 to 1918, I have eliminated twenty-five cases of tetanus neonatorum, believing that the several factors affecting these cases, such as birth trauma, nutrition and syphilis, would make it difficult for me to arrive at just conclusions regarding the special therapeutics of tetanus. Thirty-four cases were eliminated because of incomplete data or because the diagnosis seemed not sufficiently well established. Thus 368 case reports were available, a number which seemed sufficient to justify comparisons of some value as between rival methods of cure.

As a preliminary to the detailed study of these cases, I have thought it of interest to compare the mortality by decades, going back to the earliest records available. These records, as shown by Table 1, give a mortality of 68.7 per cent. in the decade from 1840 to 1849, varying up and down through a maximum of 83.9 per cent. in the period from 1880 to 1889, then coming steadily down to 68.5 per cent. in the period from 1910 to 1917, the current period. Comparing decades, we find the gross undifferentiated mortality about the same now as it was seventy years ago.

TABLE 1.—MORTALITY BY DECADES

Period	Discharged	Died	Total	Mortality per Cent.
1840-1849 (incomplete)	5	11	16	68.7
1850-1859	17	70	87	80.4
1860-1869	14	43	57	75.4
1870-1879	17	58	75	77.3
1880-1889	13	68	81	83.9
1890-1899	33	117	150	78.0
1900-1909	54	119	173	68.7
1910-1917 (7 years)	105	229	334	68.5
Mortality before and after introduction of serum:				
1840-1889	66	250	316	79.1
1890-1917	192	465	657	70.7

Comparing the period before the introduction of antitoxic serum with that subsequent to this epoch-making innovation, we find that the period from 1840 to 1889 gives a mortality of 79.1 per cent., and from 1890 to 1917 a mortality of 70.7 per cent. It should be mentioned here that throughout this paper all patients discharged have been contrasted with all patients that died, without considering that some of those discharged afterward died. This fact tends to make the mortality less than it would be if these cases were eliminated. The reduction in mortality from 79.1 per cent. to 70.7 per cent., while not insignificant, is small compared with that in the other diseases, such as diphtheria and meningitis, in which antitoxic serum is employed. We must admit that we have progressed but little in the treatment of this disease and that strenuous efforts must be made to correct our errors and lessen the heavy mortality rate.

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* Read before the Section on Surgery, General and Abdominal, at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

PROPHYLAXIS IN THREE HUNDRED AND SIXTY-EIGHT CASES

Taking up the question of prophylaxis, in our 368 authentic cases of tetanus reported during a period of twelve years, we find twelve patients, each of whom received a preventive dose of serum, of whom four died—a mortality of 33⅓ per cent. Of these twelve cases, two should have had the dose repeated because of continued suppuration in wounds originally liable to tetanus infection. In one of them, suppuration in an arm-stump continued forty-four days before onset; in another there was metatarsal necrosis, following a gunshot wound, for seventy-two days before onset. Experience has shown that in patients presenting likelihood of tetanus infection the preventive dose should be repeated after ten days if suppuration continues. This precaution is very generally neglected by surgeons in the charity hospital. Continuing the analysis of the cases of twelve patients who developed tetanus notwithstanding a preventive dose of antitoxin, we find that four received this dose from five to eight days after the injury, three recovering and one dying.

It is the duty of the surgeon to inquire whether patients suffering from accidental injury and coming under his care after first aid has been given, have received antitetanic serum. Its prompt administration, even after the lapse of several days, may avert the disease or diminish its severity. Elimination of the six cases mentioned leaves six unexplained cases of tetanus following preventive doses in the course of twelve years, or one case for every two years. Though serum did not prevent tetanus in these twelve cases, it appears to have lessened the intensity of the disease, as the mortality for the series was 33⅓ per cent.

TABLE 2.—COMPARATIVE MORTALITY IN CASES OF TETANUS UNDER DIFFERENT METHODS OF TREATMENT

Method of Treatment	Adults			Children			Total	
	Cases	Deaths	Mortality, per Cent.	Cases	Deaths	Mortality, per Cent.	Cases	Mortality, per Cent.
Serum subcutaneously given..	43	33	76.7	51	33	64.7	94	70.2
Serum introduced into the muscles, nerves, veins, subarachnoid space	37	28	75.6	16	8	50.0	53	67.9
No serum given; treatment by sedatives, excluding chlorbutanol................	51	38	70.3	55	40	72.7	109	71.5
No serum given; treatment by sedatives, including chlorbutanol................	52	36	69.2	40	25	62.5	92	66.3
Magnesium sulphate introduced subcutaneously or into subarachnoid space....	11	8	72.7	9	6	66.6	20	70.0
Totals	197	143	72.5	171	112	65.4	368	69.2

Assuming that all the patients returned to the charity hospital for treatment, and taking into consideration the large number of punctured, lacerated, crushed and gunshot wounds treated annually in the accident service (133,102 cases of all kinds treated in the accident service during the period from 1906 to 1917), it seems clear that the preventive use of antitetanic serum has fully established its claim to recognition. This experience leads us to urge that a campaign of education be initiated among the less well informed classes of our population, in order that the mortality from this preventable disease may be reduced to the vanishing point. Too often the injured of these classes content themselves with the use of bacon fat, turpentine and cockroach poultices for punctured wounds when a preventive dose of serum would insure safety and prevent the pain, disability and loss of life consequent on the neglect of this precaution. It may be well, before I leave this phase of the subject, to refer to the question of anaphylaxis and of primary hypersensitiveness to serum. I have never known a death to result from either cause. In all patients exposed to tetanus infection the serum should be given, regardless of the remote danger from animal proteins.

EFFECTS OF VARIOUS METHODS OF TREATMENT

We now come to a study of the comparative mortality under different methods of treatment, as shown in Table 2. From this table it will be seen that the mortality rate for children was markedly lower than that for adults, except when the treatment was by sedatives, excluding chlorbutanol, being here 72.7 for children as compared with 70.3 for adults. Cases treated without serum by sedatives, including chlorbutanol, were compared with those treated without serum by sedatives, excluding chlorbutanol because of the claims made for this drug. As a matter of fact, the chlorbutanol cases gave the lowest joint (adult and children) mortality (66.3 per cent.), slightly lower than that for serum given otherwise than subcutaneously. Our results from serum given otherwise than subcutaneously, a method highly praised by Ashhurst of Philadelphia, have in the mass proved disappointing, though individual casts have shown striking results. For children (24 cases) it gave the lowest mortality (50 per cent.).

TABLE 3.—COMPARATIVE MORTALITY OF CASES OF TETANUS UNDER VARIOUS TOTAL DOSES OF SERUM

Dose	Adults			Children			Total		
	Cases	Deaths	Mortality, per Cent.	Cases	Deaths	Mortality, per Cent.	Cases	Deaths	Mortality, per Cent.
Less than 5 000 units....	33	26	78.7	54	36	66.6	87	62	71.2
Between 5,000 and 10,000 units	24	20	83.3	10	4	40.0	34	24	70.6
Over 10,000 units........	17	11	64.7	6	2	33.3	23	13	56.5

EFFECTS OF TREATMENT ACCORDING TO DOSAGE

Thinking that the disappointing results from serum, whether given hypodermically or introduced into veins, muscles, nerves and subarachnoid space, might be due to the small quantity employed, I have tabulated the cases according to the quantity administered, as shown in Table 3.

The figures showed a definite improvement with the increase of the doses, with the sole exception of those for the adults receiving between 5,000 and 10,000 units. In the children especially the drop from 66.6 to 40 per cent. and to 33.3 per cent., as the dose went up, was striking. As the large doses were those given otherwise than subcutaneously, it is a question whether the size of the dose or the method of administration is to be credited with the better results. It is interesting to note that one adult patient in a fatal ca received in nine days 192,875 units, given otherw than subcutaneously.

As a matter of interest, the mortality for varying periods of incubation and for the varying duration of illness before the patients' admittance to the hospital was analyzed. The accepted idea that the mortality varies inversely with the length of the period of incubation was supported by our analysis (Table 4). Seventy-five cases with an incubation period of less than seven days had a mortality of 82.6 per cent. Ninety-six cases with an incubation period of more than seven days had 59.3 per cent. mortality. Yet one patient with forty-four days of incubation died and one with three days recovered.

One might have thought that patients treated in a hospital shortly after the onset of symptoms would give a smaller mortality rate than those remaining ill outside for some days before treatment was instituted. Our figures, as set forth in Table 4, show that ninety patients, ill for less than two days *before admittance*, had a mortality rate of 75.9 per cent.; that forty-three patients, ill from two to seven days, had 58.1 per cent., and that thirteen patients, ill for more than seven days, had 38.4 per cent. Possibly the reduced mortality after several days was due to the elimination of the worse, fulminating patients, who died within two or three days.

TABLE 4.—COMPARATIVE MORTALITY OF CASES OF TETANUS ACCORDING TO (A) PERIOD OF INCUBATION, AND (B) DURATION OF ILLNESS BEFORE ADMITTANCE TO HOSPITAL

	Adults			Children			Total		
	Cases	Deaths	Mortality, per Cent.	Cases	Deaths	Mortality, per Cent.	Cases	Deaths	Mortality, per Cent.
A: Duration of Incubation:									
Under seven days........	67	56	83.5	8	6	75.0	75	62	82.6
Over seven days..........	86	51	59.3	10	6	60.0	96	57	59.3
B: Duration of Illness:									
Under two days.........	90	68	75.5	14	11	78.5	104	79	75.9
Two to seven days......	39	24	61.5	4	1	25.0'	43	25	58.1
Over seven days.........	12	5	41.6	1	0	0.0	13	5	38.4

MINOR FACTORS IN TREATMENT

Another element in the treatment of tetanus, which does not appear from these figures, lies in the personal equation of the attending surgeon and nurses. These patients require a detailed care for nutrition, skin cleansing, bowels, etc., which is very laborious. They need the greatest degree of quietness and gentleness. Too often their cases are looked on as necessarily fatal, and, as unwelcome guests, they are screened off not only from view but also from active attention. These cases should be concentrated in the hands of attendants sanguine of obtaining good results by hard work and anxious to lessen the mortality of this dread disease.

CONCLUSIONS

1. All victims of accidental injury of a punctured, lacerated, crushed or gunshot character, especially when associated with foreign bodies or with exposure to street, garden or stable contamination, should receive 1,500 units of antitetanic serum at the first treatment.

2. All patients of this type coming secondarily under observation should receive the serum, though several days may have elapsed.

3. If in this class of cases suppuration continues, the administration of the serum should be repeated at intervals of ten days, as we have reason to believe that its protective influence does not last beyond this time.

4. Patients coming under treatment for tetanus should be isolated in quiet, comfortable rooms, under the care of surgeons and nurses interested in their treatment and confident of improving on past results by devoted attention.

5. Treatment should be by large doses of serum, of not less than 10,000 units to the dose. Administration by the intravenous, intraneural, intramuscular and subarachnoid methods should be more extensively employed for the purpose of bringing out their value more thoroughly.

6. Food and water, skin cleansing, the care of the bowels and the use of sedatives to calm anxiety and *relieve pain must all receive the closest attention.*

ABSTRACT OF DISCUSSION

DR. SAMUEL J. MELTZER, New York: I am going to demonstrate three groups of lantern slides. The first group shows the rapid favorable action of magnesium sulphate on tetanus. The first picture of this group shows the animal in extreme tetanus with trismus and opisthotonos. In the second picture you see the same animal without opisthotonos and trismus, and the general tetanus is greatly diminished You see the buret from which the animal received an intravenous injection of magnesium sulphate. In the third slide all manifestations of tetanus are gone; the animal received more of the magnesium solution. The cannula from the jugular vein was now removed. In the fourth picture you see the animal lying on its abdomen, the head slightly raised, in a normal position on the floor. Fifteen minutes later the animal was running about in the laboratory in a natural condition.

In the second group of slides I wish to demonstrate the danger of an overdose of magnesium and the resuscitation from it. In the first slide you see the animal with trismus and moderate tetanus. In the second slide the animal is completely relaxed and in a dying condition; there were no respirations and the pulse was extremely feeble. The animal received now an intravenous injection of calcium chlorid. In the third slide you see the same animal two minutes later, standing up in a normal fashion.

In the third group the favorable effect of subcutaneous injections of magnesium is illustrated. Four animals received simultaneously similar lethal doses of magnesium. Two were kept as controls; the other two received daily subcutaneous injections of magnesium sulphate. The first picture shows six days later the two control dogs; one in extreme tetanus and the other dead. The second picture shows the treated animals; they are relaxed, lying on their abdomen, their heads slightly erect, in a normal fashion. I wish to emphasize that the use of magnesium sulphate does not exclude the simultaneous treatment by serum.

Permit me to add a few words regarding the use of statistics. If they should have any value they must be analyzed with great care. With regard to magnesium in tetanus, let me quote two illustrations One instance occurred in the progressive clinic from which Dr. Gessner hails. An advanced case of tetanus received an intraspinal injection of magnesium. Next day the patient died with pulmonary edema. The conclusion was drawn that magnesium is liable to cause pulmonary edema. Now, pulmonary edema is a frequent complication of tetanus. In thirty-two necropsies of untreated cases of tetanus, Frank found severe pulmonary complications, including edema, in twenty-six. Another striking illustration are the statistics from the English committee. Their thirty *cases include the administration of Epsom* salts by the mouth and by the rectum, and contains not a single case which was treated by magnesium in a proper manner. On the other hand, Pribam, in October, 1916, reviewed 148 articles from the Teutonic literature. He says that at present magnesium sulphate is the best palliative remedy we possess for the treatment of tetanus.

Dr. Albert J. Ochsner, Chicago: The fact that Dr. Gessner, with his opportunity for observing the enormous material that his hospital presents, is giving attention to this subject, means that within a few years we will have practical results that will be worth while So far as the use of antitoxin is concerned, I have become more and more convinced from our experience that it is the very large dose that gives the patient a chance. This has lately been confirmed by a very large number of observations in connection with the Italian army. During the campaigns of 1914 and 1915 in France, Professor Tezzoni discovered that there was a varying incidence. The lowest incidence was about 0.5 per cent., the highest from 2 to 2.5 per cent. (I think these figures are too conservative.) These figures were unsatisfactory to Professor Tezzoni. Most, if not all, of the wounded had received a prophylactic dose of tetanus antitoxin. He suspected that a larger prophylactic dose might result in greater efficiency of the treatment. Accordingly, he instituted a series of experiments on animals in his own laboratory at Bologna. These experiments developed the fact that about ten times what had been previously regarded as a maximum prophylactic dose could be administered with safety.

Immediately he made this announcement to the surgeons of the Italian army and thereby established a new standard of treatment. His method of administration was through four avenues: subcutaneously, intravenously, intermuscularly and intraspinally.

He then instituted a personal inspection of the Italian wounded. He observed 40,000 gravely wounded soldiers, all of whom had received the heroic prophylactic dose. In this group eleven cases of tetanus developed. Four patients died. Three lay in No Man's Land one, two and three days, respectively, before receiving the prophylactic dose; the history of the fourth case was not available; hence but one fatal case out of the 40,000 cases remains unaccounted for.

The 40,000 Italians each received ten times the usual dose of 1,500 units which Dr. Gessner has given. During the last few years we have applied this principle in our clinic.

Dr. W. Estell Lee, Philadelphia: In view of Dr. Meltzer's speaking of the lack of value of statistics, it may seem presumptious of me to quote statistics. I think, however, it would be very unfortunate for medical men, particularly those who may have to deal with war wounds, to have any doubt cast on the value of the prophylactic use of antitetanic serum. The experience is a personal one, the factors are constant because it was the same hospital, the same nurses, the same surgeons. The French wounded, 250, were received at this hospital after the battle of the Marne. Over 60 per cent. of them had clinical symptoms of tetanus and no antitoxin. From shortly after the battle of the Marne until after the battle of the Champagne over 4,000 wounded were received. In none of them were the wounds excised, as is now done, and unfortunately in most of them the wounds were not even incised, and no antiseptic solutions were used of any kind. In that 4,000 received during the administration of the antitetanic serum, only twelve cases of tetanus developed in those we cared for. A little more striking was the first series that came shortly after the introduction of the use of antitetanic serum. Five hundred cases came during a period of three months from the first attack at Verdun to the battle of the Champagne. In these 500 only one developed clinical symptoms of tetanus while in our care. Our faith in the antitetanic serum as a prophylactic measure had become so fixed that we immediately tried to find the Poste de Secours from which he came. Each man received had his previous medical treatment on his card. This man had a record of a hypodermic, and we assumed and he told us that that hypodermic was one of antitetanic serum. After investigation we had a reply from this medical officer saying that what he had given was morphin and not antitetanic serum. Any one who has seen the wounded who have not received antitetanic serum and those who have, can have no doubt of its value, and I feel that it would be a great mistake for us to expect to receive by excision of wounds or the use of antiseptics the protection against this dread complication that the serum has given.

Dr. C. J. Holman, Mankato, Minn.: I would like to add a few words as to what has been said in reference to the use of magnesium sulphate, as suggested by Dr. Meltzer and explained by him. I have had an opportunity to treat about a dozen cases of tetanus. My first case was one of suppurative appendicitis. By the aid of magnesium sulphate and the antitetanic serum, the man is still living. The next patient I saw had a crushing injury to the hand. She was brought into the hospital on the fourth or fifth day and died after the third injection of magnesium sulphate. She probably would have died sooner than that without the magnesium sulphate. I did not attribute her death to the magnesium sulphate. In another case of crushing injury to the hand, the patient recovered in about three weeks. He was brought to the hospital on about the seventh or eighth day. A man who had let the hand fall into the knives of a corn shredder also made a good convalescence. He was given magnesium sulphate and also the antitetanic serum. The dose was, I remember it, 10 minims of a 25 per cent. solution for a person weighing about 150 pounds. The dose was increased so that it was given in large enough amounts to control the spasm, to release the spasm and make the patient comfortable. Another man had a wound of the knee produced by the kick of a gun. Of course, he contracted tetanus from his soiled clothing. The symptoms began about the tenth day. Magnesium sulphate, intraspinally, controlled the spasms and made him fairly comfortable, though he died about ten days later.

Dr. Clark D. Brooks, Detroit: The reason the mortality has been high is simply that the prophylactic dose is not given early. I always give a prophylactic dose in compound fractures, punctured or lacerated wounds. Our surgical intern does not wait for directions from us; he gives the patient a prophylactic dose of antitetanic serum. The intern is instructed that if the patient sustained an injury several days before he gets 20,000 units. That is the reason we are getting a lower mortality. We also use magnesium sulphate intravenously and intraspinally. As far as we can see it does not matter. We will not lower mortality until we give our patient prophylactic serum. Every day that the patient has the wound and is untreated the higher the mortality. He should have 5,000 to 10,000 units every second day, and 50,000 units is not too large to give a patient as soon as you see him when he has tetanus four or five days. We give as high as 100,000. I have not seen bad results from large doses, but have seen bad results from small doses.

Dr. H. B. Gessner, New Orleans: What I meant to bring out in my paper was, first, the importance of prophylaxis, and second, the fact that we do not know positively the best way to treat tetanus. The idea of my paper was suggested to me by a colleague in the hospital. He knew I was interested in tetanus; he stopped me and asked me how to treat a case. I told him I did not know; then determined to look up our results with the different methods.

I have to admit the truth of what Dr. Meltzer says in regard to the question of statistics. It is easy to go astray in using them. However, I believe, when you have a large number of cases it is possible to draw conclusions. Referring to the magnesium treatment, I have had two consecutive cases of tetanus recover under magnesium sulphate given hypodermically. On the other hand, I recall a little colored boy who punctured his foot on a nail on Monday; Friday he had symptoms of tetanus; on Saturday he came into my hands. I gave him serum intravenously, intramuscularly, intraneurally and into the subarachnoid space. Within three days he was much better, and within a week he made a good recovery. Every one can recall cases of recovery from tetanus under individual methods of treatment. The question is, What method offers the best prospect of cure? In seeking the answer to this question, I believe, after all, we must depend on a large mass of statistics, taking stock and finding out where we stand.

Regarding pulmonary edema, it is a fact that there is some relation between tetanus and lesions of the lungs. I can recall cases in which the patients died of pneumonia. In conclusion, let me say that I am encouraged to try magnesium sulphate more persistently than before.

THE ACTIVE CONSTITUENT OF THE THYROID

CHEMICAL GROUPS THAT ARE RESPONSIBLE FOR ITS PHYSIOLOGIC ACTIVITY *

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ROCHESTER, MINN.

Since Baumann,[1] in 1896, discovered that iodin is a normal constituent of the thyroid gland, it has been obvious that the isolation in pure crystalline form of the compound containing iodin was necessary before we could know the function of the gland and the relation of iodin to this function.

There are many mechanical difficulties involved in the isolation of the iodin compound. It occurs at best in one part in 4,000, and during many months of the year the amount present is not more than one part in 10,000 of fresh glands. For the completion of this work, eight years of practically continuous investigation and more than 2 tons of thyroid glands have been used. Some 20 gm. of the active constituent in pure crystalline form have been separated. The investigation, besides involving the separation of this substance, has also included the determination of its chemical formula both empiric and structural, together with its synthesis, and the investigation of its physiologic action as well as the treatment of clinical conditions. The ultimate analysis of the compound is: C, 22.74; H, 1.72; O, 8.21; N, 2.38; I, 65.10. Its structural formula is shown in Figure 1.

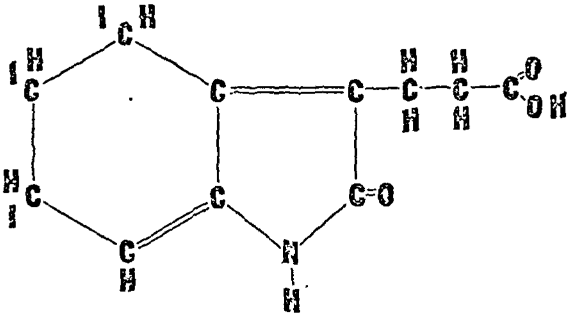

Fig. 1.—The structural formula of the active constituent of the thyroid.

The physiologic investigation of this substance has demonstrated that in pure crystalline form it will increase the energy output of the animal organism. In emphasizing this fact I am using Plummer's explanation for the function of the substance. Heretofore the activity of the thyroid has been studied and expressed mainly in clinical terms. Instead of saying that this iodin compound will relieve the symptoms of myxedema, that it will produce hyperthyroidism, that it has this or that effect on the kymograph, that it affects the pulse rate, blood pressure, nitrogen metabolism, etc., I shall state its action in a definitely measurable quantity: One third of 1 mg. of this substance increases the basal metabolic rate of an individual weighing approximately 150 pounds, 1 per cent. If the basal metabolic rate of an individual of this weight is 30 per cent. below normal, the administration of 10 mg. will raise the metabolic rate to normal; and if it is 21 per cent. below normal, the administration of 7 mg. will raise it to normal. The administration of greater amounts of the substance will increase the basal metabolic rate to a figure just as high as is compatible with life.

Plummer's definition for the function of the thyroid is that it determines the amount of energy that any given cell within the body can produce on stimulation either from within or without. It determines the quantum of energy that it is possible for any given cell to produce. When this is emphasized and the problem is faced in this light, the question of the function of the thyroid assumes an entirely new aspect.

The moment the metabolic rate increases, fundamental changes are produced; for instance, the pulse rate increases, the pulse pressure must increase, the rate of blood flow must increase, and if pushed long enough the body sugar, fat and proteins will be used up in greater amount than normal, meaning an increase in the carbon dioxid output and oxygen consumption, and an increase in nitrogen elimination. Symptoms due to subnormal activity of tissues will be relieved; in other words, the condition of myxedema will disappear. If the metabolic rate is carried high enough, so high that it approaches that found in hyperthyroidism, then the symptoms of hyperthyroidism will appear. All this has been demonstrated in a very large number of cases at the Mayo Clinic, so that not only has Plummer[2] shown that this substance is physiologically active, but he has expressed with mathematical exactness the function of the gland, as well as the normal physiology involved when the secretion of the thyroid functionates. This addition to our knowledge of physiology is incomparably greater than merely the knowledge that a certain substance isolated from the thyroid happens to possess demonstrable physiologic activity. Plummer's conclusions are based on his own observations, made in thousands of cases of goiter, and on his knowledge of physiology. It is possible that these conclusions could not have been satisfactorily proved from existing data; but by the use of this substance as a tool, his hypothesis has been entirely substantiated, and now the function of the thyroid can be expressed as a physiologic process and not in terms of anatomic changes and clinical syndromes.

It was of great interest, therefore, to determine the chemical nature of this iodin-containing compound so fundamentally involved in normal physiology. Analysis has shown that it contains an indol group with the iodins undoubtedly attached to the benzene ring, and that on the carbon atom adjacent to the imino group of the indol ring there is an oxygen atom. For reasons given hereinafter, it appeared desirable to emphasize the presence of the oxy-indol nucleus and it appeared equally desirable not to emphasize the presence of iodin. The substance was, therefore, named "thyro-oxy-indol," which has been shortened to "thyroxin" for everyday reference to the substance. At first we attempted to show that the activity of thyroxin was due to the oxygen condensing with the amino group of an amino-acid, and the carboxyl group of the amino-acid reacting with the imino group of thyroxin. It has been shown, however, that this does not occur; but that the physi-

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* From the Mayo Foundation.

* Read before the Section on Pharmacology and Therapeutics at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

[1] Baumann, E.: Ueber das normale Vorkommen von Jod im Thierkörper, Ztschr. f. physiol. Chem., 1895-1896, **21**, 319-330; ibid. 1896-1897, **22**, 1-17.

[2] Plummer, H. S.: The Thyroid Hormone, and Its Relation to Metabolism, presented before the Association of American Physicians, May 6, 1918, Atlantic City.

ologic activity of the substance is produced by the CO-NH groups has been demonstrated as follows:

The injection of pure thyroxin is followed by a very definite and marked physiologic response. When the hydrogen on the imino has been replaced with acetyl, the substance loses its physiologic activity and the injection of the substance is without demonstrable effect. Investigation of the acetyl showed that in alkaline solution the indol form of the compound no longer exists, but that there is hydrolysis of the CO and NH groups resulting in the opening of the ring and the formation of COOH and NH_2 (Fig. 2). Further investigation showed that thyroxin behaves in the same way, and that it exists within the body, not in the closed ring form, such as is present in indol, but in the form COOH NH_2. The ability of the indol ring to open in this manner furnishes the first concrete conception of how the substance behaves chemically within the body. The fact that both thyroxin and the acetyl derivative exist in open form suggests that the reason for the inactivity of the acetyl is interference with the chemical reactions associated with the NH_2 group of thyroxin. One is at once struck with the fact that the open and closed forms of thyroxin bear to each other the same relation as does creatin to creatinin, and that the same relation exists between amino-acids and the form in which amino-acids are united in protein. Establishing these active groups emphasizes the importance of the chemical nucleus CO NH and COOH NH_2 within the body, which appears to be a necessary structure for the carrying out of chemical changes leading to the production of energy.

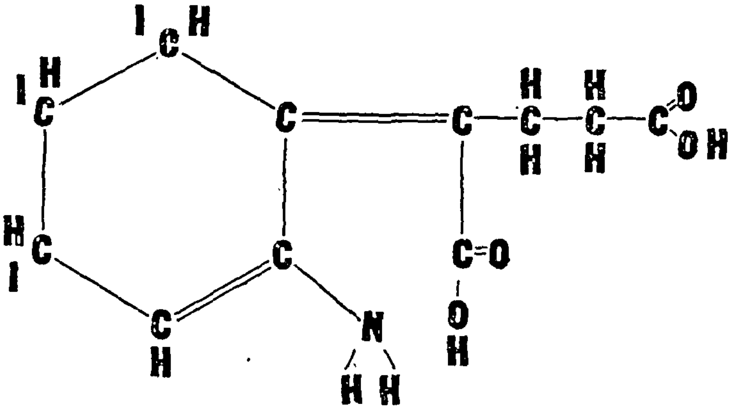

Fig. 2.—The open ring form of thyroxin as it exists in the body.

Patients with complete atrophy of the thyroid have basal metabolic rates approximately 40 per cent. below normal. It has been shown that administration of thyroxin alone can bring back and maintain the normal metabolic rate in these persons. But in complete atrophy of the thyroid, the complete or nearly complete absence of thyroxin may be assumed. The question arises as to what maintains energy output from 100 per cent. below normal, which would be death, up to 40 per cent. below normal, the point to which basal metabolism sinks in the absence of thyroxin. May it not be the other chemical substances in the body possessing the same grouping that occurs in thyroxin? These are amino-acids and proteins, creatin and creatinin, and a few other less well known compounds. It seems probable that on the administration of thyroxin a reaction that has been carried on within the body by other compounds is merely increased in rate, but that there is no other difference or disturbance of the reactions that have been going on.

In regard to the relation of iodin to the activity of thyroxin, the presence of iodin in the compound must exert some influence, and it seems not improbable that the presence of iodin renders the active groups more reactive. In the absence of iodin it would take a greater working pressure to bring about the reaction.

The substitution of hydrogen, chlorin or bromin for the iodin would undoubtedly be followed by an alteration in the degree of reactivity of the substance, but its gross chemical nature and properties would not be altered thereby. That the iodin breaks off from the molecule and is used as iodin per se for any purpose seems absolutely impossible because Plummer has shown that this substance functions for as long as from fifteen to twenty-one days after being administered, and that it acts as a true catalyst, being used over and over, hour after hour, without destruction except at a very slow rate. It is finally removed from the body either by actual destruction or by slow loss in an undestroyed form. Our knowledge of other catalytic agents shows that poisoning of catalysts is common if not universal, so that its slow destruction is to be expected.

The exact chemical reactions involved when this substance functions are still unknown, but that the substance possesses the formula as shown above is established by the ultimate chemical analysis of its derivatives. That the active groups present in thyroxin are a necessary mechanism for the production of energy within the body seems highly probable, and it is of great interest and significance that there exists a close analogy between this substance, whose exact effect on metabolism we know, and other substances, creatin, creatinin, amino-acids and proteins, which are also intimately associated with reactions occurring within the animal organism. Are these substances also concerned in the maintenance of the basal metabolic rate?[3]

ABSTRACT OF DISCUSSION

Dr. George N. Jack, Buffalo: I would like to ask Dr. Kendall why sometimes there is a development of thyroid trouble while taking iodin? I have three such cases. Two patients recovered on stopping the iodin; none of the three has a permanent goiter.

Dr. V. A. Lapenta, Indianapolis: There are only two things that I do not understand clearly: I believe Dr. Kendall wishes to convey the idea that the iodin content of the molecule is not responsible at all for its physiologic action, and that a compound, iodin-free, without changing the structural formulas of the active groups or the position of the COOH group is just as active as if the iodin was present. This somewhat alters our clinical knowledge of iodin relative to thyroid function. We cannot explain the severe exaggeration of symptoms in exophthalmic goiter on the administration of iodids and the beneficial effects of iodin in myxedema even without thyroid extract. Clinicians have observed this for many years.

Dr. Walter A. Bastedo, New York: I have been much interested in Dr. Kendall's finding that iodin is only secondary in the structure of the active substance; because, as we all know, animals are found from time to time without any iodin in the thyroid, and yet they are not diseased animals. It has been very difficult to explain how sheep and other animals lived and were healthy without iodin in the thyroid. It is quite probable, then, that in those cases something else takes the place of iodin in the compound; and that would show that iodin is only an incident in the makeup of the molecule and is not essential.

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[3] In addition to the articles already cited, the following, by the author, will be found of interest:
A Method of Decomposition of the Protein of the Thyroid with a Description of Certain Constituents, Jour. Biol. Chem., 1915, **20**, 500-509.
The Isolation in Crystalline Form of the Compound Containing Iodin Which Occurs in the Thyroid: Its Chemical Nature and Physiological Activity, The Journal A. M. A., June 19, 1915, pp. 2042-2043; Tr. Assn. Am. Phys., 1915.
Studies of the Active Constituent, in Crystalline Form, of the Thyroid, Tr. Assn. Am. Phys., 1916, **31**, 134-145.
Recent Advances in Our Knowledge of the Active Constituent in the Thyroid: Its Chemical Nature and Function, Boston Med. and Surg. Jour., 1916, **175**, 557-562.
The Thyroid Hormone, Mayo Clinic Collected Papers, 1917, **9**, 209-336.

Dr. E. C. Kendall, Rochester, Minn.: The relation between the administration of iodin and thyroid trouble assumes two distinct conditions: One is the relief of goiter by the administration of iodin, and the second is the production of hyperthyroid symptoms by the administration of iodin. In the first condition, the gland is enlarged because it is stimulated, due to the insufficient amount of its active constituent available for the body. Administration of iodin, in this condition, allows the gland to manufacture its active constituent; the stimulus on the gland is, therefore, removed and the size diminished, possibly restoring it to normal. If encapsulated adenoma or a cystic condition is present, a mechanical factor enters which does not permit the gland to return to normal size.

The administration of thyroxin in large amounts produces typical hyperthyroid symptoms. It would, therefore, be expected that the administration of iodin in such amounts as to produce an excessive outpouring of thyroxin, would result in hyperthyroid symptoms. Besides these symptoms, due to the active constituent of the thyroid, there is still another condition, known as "iodinism," which is a distinctly different trouble.

Very small amounts of iodin given to an exophthalmic goiter patient sometimes produces clinical improvement, but it is not a curative measure. The relation between iodin and clinical symptoms is very difficult to explain, but it seems probable that the determination of the functionating groups in the active constituent of the thyroid will throw much light on the subject. It is possible to explain the toxic symptoms produced by the hyperplastic thyroid by assuming that an excess of its secretion is being formed. This can be disproved by the fact that the amount of iodin in the gland is lower than normal, which probably is not entirely explained by the immediate pouring out of the substance from the gland, although this may, in part, be the explanation. Another explanation is that the gland produces thyroxin without the iodin attached. The body would thus be supplied with possibly an enormous quantity of the functionating part of thyroxin, which could theoretically produce the effects that are known.

Iodin in myxedema depends entirely on the amount of active thyroid substance which is present. Myxedema may be due to a partial failure of the gland to maintain a normal supply of thyroxin, or to complete atrophy of the gland. In the first place, the administration of iodin would possibly enable the thyroid substance which is present to make sufficient thyroxin to relieve the symptoms. In the second condition no amount of iodin would avail because the gland, being completely atrophied, could not manufacture any of the active constituent.

In regard to the animals that have iodin-free thyroids, it seems probable that these fall into the same condition as in myxedema in which the gland is completely atrophied and the metabolic rate is below normal. In time this causes a clinical condition which is marked by edema and other well known signs and symptoms. However, the human being or the animal does not die. It is, therefore, apparent that something in the body can maintain the metabolic rate, at least up to 40 per cent. below normal. Reasoning from the analogy of the active groups in thyroxin, the question arises whether it is not creatin, amino acids and proteins in general that have this power.

The administration of corpus luteum for the relief of exophthalmic goiter has been tried. I am not in a position to discuss its merits, but I am certain that it is not a specific cure.

Syphilis.—The danger of syphilis to the community or individual is increased in proportion to the inadequacy of the treatment received by those suffering with the disease.—Vedder.

THE USE OF DICHLORAMIN-T IN THE PREVENTION AND CONTROL OF SURGICAL INFECTION *

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The attempts of surgeons, during the early months of the present war, to close gunshot wounds at the time of the primary operation were uniformly followed by disastrous results. Virulent infections of gas gangrene, streptococci, pneumococci, and other pathogenic organisms had invariably followed primary closure and it was therefore ordered that all gunshot wounds should be left open. This decision, of course, ordained that practically every gunshot wound was to become an infected wound.

At the present time surgeons of the allied armies are closing their wounds, when mechanically possible, at the time of the primary operation as a matter of routine, just as they would civilian wounds, and are obtaining primary union without infection in from 85 to 90 per cent. of the cases so treated.

After four years, military surgeons are now agreed that the most important factors in the prevention of infection in traumatic military wounds are: (1) Surgical treatment at the earliest possible moment; (2) the removal of all foreign bodies; (3) the complete removal of devitalized tissues; (4) the application of such a germicide as will not delay the time of the closure of the wound by the method of its application, and (5) the earliest possible closure of the wound when the foregoing procedures have been practiced.

When it is not possible to prevent infection by such measures, another problem is presented, namely, the control of infection. Here again the same principles should be followed: early operation, and removal of foreign bodies and dead and devitalized tissues; but, in our experience, the additional use of a germicide will be a definite aid in the control of these infections.

DISINFECTION METHODS REVOLUTIONIZED BY CHLORIN

Voluminous reports of results obtained in the treatment of gunshot wounds with the use of many germicidal agents appeared in 1915 and 1916, and still continue to appear. On careful analysis, it will be found that only in those cases in which the surgeon has practiced early operation, within three hours after the patient is wounded, and has effected the aseptic surgical removal of foreign bodies and dead tissues do the results in any way approach those reported by Carrel, Dehelly, Depage, Tuffier and Chutro, who, in addition to these surgical procedures, use Dakin's hypochlorite solution.

The experience of the surgeons of the American Ambulance during the last two and a half years is entirely in accord with that of the majority of surgeons who have served in the present war, namely, that chlorin preparations have proved superior to all other germicidal agents. It is really revolutionary from the laboratory point of view that chlorin should be found to be applicable in any form for the treatment of infected wounds, for chlorin is a general disinfectant, and as such, it is to be expected that it should be a general protoplasmic poison, fully as destructive to tissues as to bacteria. It is an agent which destroys everything with which it comes in contact, unless very carefully controlled. Before Dakin developed his unique method of control, decidedly unfortunate results followed attempts to use such standard preparations as Javel water and Labarraque's solutions.

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* Read before the Section on Surgery, General and Abdominal, at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

It is now Dakin's belief that the germicidal action of all chlorin preparations depends on substances resulting from the chemical reactions between the chlorin and the proteins of the tissues and exudates in infected wounds, which substances are known as chloramins.

These chloramins, unlike chlorin, are not destructive to the tissues and may be used in solutions as strong as 10 per cent. Thus with the chloramins, it is not necessary to employ the very weak concentrations which require the frequent applications, most essential when chlorin solutions are used.

At the Boston meeting of the American Surgical Association in June, 1917, Commander Robert G. LeConte, U. S. N. R., presented a preliminary report on "The use of dichloramine-T in the treatment of infections and infected wounds" which was based on experimental and clinical work started in December, 1916, at the Pennsylvania Hospital. In September, 1917, Major Edward Martin, M. R. C., was detailed to investigate the clinical value of dichloramin-T in the treatment of surgical infection, and Lieut. Paul A. Lewis, U. S. N. R., Capt. William F. Furness and Capt. Walter E. Lee were assigned to assist him.

The concluding paragraph of our first report on dichloramin-T expressed the attitude with which this investigation was undertaken. "One should not depend on a chemical agent to perform, in the prevention or treatment of suppuration in traumatic wounds, that which can and should be done quickly and thoroughly by mechanical means. Neither chemistry nor bacteriology can or should be expected to replace the mechanics of surgery. At best, these chemical germicides can react only on the bacteria with which they actually come in contact, which means a very superficial process. Therefore, at the primary operation all foci of infection, foreign bodies and dead and devitalized tissues must be removed, when possible, by surgical procedures and adequate drainage, dependent if indicated, should be provided."

PROPERTIES OF A SUCCESSFUL DISINFECTANT

Dichloramin-T has been found to be a germicide which possesses to an unusual degree the properties that make it possible to meet the conditions which Dunham has demonstrated govern the success of disinfection. Those properties are contact, time and mass — the mass of germicide. The irritation which accompanies the application of most germicides, limiting their use and governing their permissible concentrations, is negligible with dichloramin-T. Dichloramin-T can be used in solutions as strong as 10 per cent., the germicidal mass of such a concentration being forty times that of a 0.5 per cent. solution of hypochlorite. Because of the peculiar stability of this germicide in oil solutions and its unusual speed of disinfection, the required time of contact with the infecting organisms is readily maintained. Under average conditions its germicidal activity lasts about eighteen hours, in contrast to the thirty to sixty minutes of Dakin's hypochlorite solution. Dunham has found that its speed is eight times that of Dakin's hypochlorite, 800 times that of a 1:1,000 solution of mercuric chlorid and at least 2,800 times that of a 2 per cent. solution of phenol (carbolic acid). These tests were made in a uniform medium of blood serum and muscle extract.

Contact is essentially a mechanical problem, for the surgeon can place no dependence on the power of penetration of any known germicide. The development of a mechanical method to obtain, in traumatic and in infected wounds, the all-important contact between this agent and the infecting organisms has been the object of this investigation. At the present time, records have been obtained from 19,040 completed cases in civil surgical practice which have been treated with this agent. The patients in these cases have been treated in the Pennsylvania, the University of Pennsylvania, Germantown, Children's and Bryn Mawr Hospitals, and in the accident services of the Midvale Steel Works and the Remington Arms Company. Dr. Robert P. Cummings and Dr. George B. Sickel directed the work at the latter places.

CONCLUSIONS

After fifteen months' work, we have come to the following conclusion:

1. The use of dichloramin-T has definitely improved the results we have been able to obtain in the primary closure of traumatic wounds of the soft tissues, bones and joints.
2. In the treatment of superficial accessible surgical infections, the use of dichloramin-T has uniformly given us better results than any other germicide we have employed, and the method of its application is simpler and the dressings are more economical than with any of the other chlorin agents.
3. The best results with dichloramin-T can be obtained only when actual chemical contact of the germicide with the infecting organisms is maintained. To maintain such contact in superficial surgical infections is a simple matter and in the first few months of the work a satisfactory technic for this class of wounds was developed. In deep and inaccessible infections, the problem is more difficult and the greater part of these fifteen months has been devoted to this aspect.
4. Our confidence in the germicidal value of dichloramin-T has so developed that when it does not control a surgical infection we believe that the chemical contact has not been maintained, the mass of the germicide employed has not been sufficient, or adequate surgical treatment has not been given.
5. The striking detoxicating effect of the chlorin group of germicides, which has become common knowledge through the general use of Dakin's hypochlorite solution, is just as satisfactorily exhibited with dichloramin-T.

ABSTRACT OF DISCUSSION

Dr. Edward H. Ochsner, Chicago: The treatment of wounds and infections has interested surgeons from time immemorial. In the pre-Listerian days there were two great schools in the treatment of surgical infections—one of the schools favored ointments and the other water dressings. After Lister did his work, phenol became the great fad of the day. It was used in lotions and in nebulae, until not only the patients, but the surgeons developed smoky urine and chronic nephritis. It was discarded, often even in those conditions where it would have been of great benefit. Then came the bichlorid fad. This went through the same round of overexploitation and discard. Chronologically speaking, hydrogen peroxid came next and had the same experience, then came Wright's vaccine; last year we had eusol; today we have dichloramin-T. Every one of the methods I have mentioned is valuable. Each is valuable in certain conditions, but not one of them, not even dichloramin-T, is valuable in all forms of infection. Bacteriologists have found that in order to grow at its best, every micro-organism must have a very definite nutritive medium. They have discovered that by adding a little of this or that substance, a medium which is ideal for a certain micro-organism will become totally unsuitable for it. The clinician of large experience has made exactly the same observation in the dressing room. He has discovered a specific for nearly every pathogenic organism and the thing to do now is not to try to cure all infections by one remedy, but to use the specifics that are already discovered and make every effort to find specifics in the cases where this has not already been accomplished. This will put the treatment of septic infections on a secure scientific basis.

Dr. W. Estell Lee, Philadelphia: I want to thank Dr. Ochsner for his timely warning against too much dependence being placed on antiseptics in the prevention and control of infection. He has clearly emphasized the position we have taken in the problem of surgical infection. It should not be forgotten that infection and suppuration in human tissues depend on many factors other than that of the bacterial content. Military surgeons are placing less faith in antiseptics and are realizing the absolute necessity for ideal surgery. The end results following adequate surgical procedures in the treatment of infections and infected wounds are always better when an antiseptic is used in the proper way, but no antiseptic can be substituted for the necessary surgical procedures. The history of the treatment of surgical infection which Dr. Ochsner has outlined makes fascinating reading. The biography of Sir Lord Lister, by his nephew Godlee, covers this in an exhaustive manner and is well worth reading. The search for specific germicides for specific organisms of suppuration has engaged many workers during these years, but with the exceptions of quinin and arsphenamin there have been no satisfactory results. And these specifics are not for bacteria.

Hypochlorite, hyclorite and similar chlorin solutions contain active chlorin, which, when it comes in contact with the protein of suppurating wounds, rapidly combines with it and forms substances known as chloramins. These chloramins are probably the real germicidal agents acting when chlorin solutions are used. Because of the irritating properties of active chlorin when uncombined with protein, as on the skin surrounding wounds, such solutions can only be used in very weak dilutions. The chloramins are practically nonirritating. It is possible to make the chloramins synthetically and thus use germicidal masses forty times that generated in wounds when the usual weak solutions of active chlorin are introduced into wounds to make chloramins.

Book on Disease Prevention and Care of Sick.—The United States Public Health Service has just issued a book on the "Prevention of Disease and Care of the Sick" with a supplement on "First Aid to the Injured" which, according to the preface, is "for the use of the layman in order that he may know what measures he should take to protect himself from disease and what he should do in case of illness." This book discusses prevention and treatment of disease, emergency measures in accidental injuries, the sanitation of buildings, camps and vessels, transmission of disease by insects, rats, vermin, and the destruction of these and other harmful forms of animal life, personal hygiene and diet. The book is intended chiefly for the use of laymen when medical attention is not obtainable.

GOITER IN PREGNANCY [*]

LEIGH F. WATSON, M.D.

CHICAGO

Exophthalmic goiter in pregnancy is rare, owing to the restraining influence the disease exerts on conception. Halliday-Croom[1] reports only one case in 15,000 dispensary patients, while in his private practice he found twelve cases, causing him to believe that this complication is more prevalent among the upper classes. Bonnaire[2] found two cases in 30,000 dispensary patients. Seitz[3] in 1913 was able to collect 112 cases from his own material, literature and circular letters. Additional cases have been reported by Gellhorn,[4] Ward,[5] Markoe,[6] Crotti,[7] Davis,[8] Porter,[9] Stowe[10] and others.

I want to report seven cases of toxic goiter with exophthalmos and nine cases of toxic nonexophthalmic goiter occurring during pregnancy, seen during the past five years.

I believe that occasionally patients with goiter of brief duration ascribe their increase in symptoms at pregnancy to the pregnancy itself, while in reality the symptoms are due to a beginning hyperthyroidism. There is no doubt that some of these patients are treated for neurasthenia, hysteria, palpitation of the heart, and gastro-intestinal and nervous disorders. Many physicians do not regard goiter seriously unless it is accompanied by marked exophthalmos. At any rate, we should be more on the alert for this condition and many questionable cases should receive more painstaking diagnosis and more continued observation. One of the best means we have of furthering the study of this obscure subject is by reporting and discussing the few cases we see. I believe the subject may be most conveniently considered under the following headings: 1. Experimental Studies, 2. Clinical Observations, 3. Treatment, 4. Case Reports.

EXPERIMENTAL STUDIES

While it is true that animals lack the characteristic symptoms associated with thyroid hyperplasia in the human, the similarity of the structure of the gland makes it possible to carry out certain studies which obviously cannot be done on man.

Interest in this subject was stimulated twenty-two years ago by Halsted,[11] who reported that partially thyroidectomized dogs showed evidence of athyreosis as time of parturition approached, but the condition disappeared soon after delivery. The pups born of these dogs showed thyroids many times the normal size. Carlson[12] found, from an extensive study of newly born pups of mothers with colloid goiter, that the pups' thyroids were identical with those of pups born of mothers with normal thyroids; on the other hand, pups from mothers with active thyroid hyperplasia had thyroids larger than the normal, in direct proportion to the degree of hyperplasia in the mother.

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[*] Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

[1] Halliday-Croom, quoted by Crotti: Thyroid and Thymus, 1918.

[2] Bonnaire, quoted by Crotti: Thyroid and Thymus, 1918.

[3] Seitz: Deutsch. Gesellsch. für Gynäk., Halle, May, 1913.

[4] Gellhorn, G.: Am. Jour. Obstetrics, 1913, **68**, 1132.

[5] Ward, G. G., Jr.: Surg., Gynec. and Obst., 1909, **9**, 617.

[6] Markoe, J. W.: Bull. Lying-In Hosp., June, 1912-1913, **9**, 96.

[7] Crotti, A.: Thyroid and Thymus, 1918.

[8] Davis, E. P.: Bull. Lying-in Hosp., 1912-1913, **8**, 176.

[9] Porter, M. F.: Am. Jour. Obst., 1911, **14**, 781.

[10] Stowe, H. M.: Am. Jour. Obst., 1909, **60**, 223.

[11] Halsted, W. S.: Bull. Johns Hopkins Hosp., 1896, **1**, 399.

[12] Carlson, A. J.: Am. Jour. Physiol., 1914, **33**, 95.

The same was true of kittens. Carlson remarks that while the above observations were made in a locality where goiter is endemic among dogs, the proportion being perhaps 90 per cent., no mother with a normal thyroid gave birth to a goitrous pup.

Hoskins[13] fed thyroid to pregnant guinea-pigs and found the newborn had abnormally small thyroids. Beibtreu[14] also fed thyroid to pregnant guinea-pigs and found that it caused frequent abortion, death and absorption of the fetus.

Some years ago the sheep in northern Wisconsin and Michigan developed goiter and the lambs became cretins. On substituting sea salt with a high iodin content for the local salt, the goiter disappeared and healthy lambs were again raised. Smith[15] made a study of fetal athyreosis, which is prevalent among pigs in certain sections of the Northwest, causing them to be born hairless and dead or in a dying condition, and concluded that an iodin deficiency existed during the latter part of gestation, he apparently proved his point by feeding the mothers iodin during pregnancy and producing healthy pigs.

Tatum and Mills,[16] working with rabbits, guinea-pigs, cats and pigs, found that if the animals were kept in a cold box for one week or longer, their thyroids showed lessened colloid and taller epithelial cells, that is, increased activity. On the other hand, animals kept for the same length of time in a warm room at 30 to 32 C. showed increased colloid and flattened epithelium, indicating decreased activity. Further studies of the seasonal variation of the thyroid of pregnant and nonpregnant wild animals is now in progress.

Marine[17] has shown that the iodin content is highest in normal and colloid thyroids, and lowest in marked hyperplastic or exophthalmic thyroids. The adult thyroid contains more iodin than any other organ in the body. In the fetal thyroid, iodin is present in very small amounts and may rarely be absent. In pregnancy the iodin content of the thyroid diminishes as the time of parturition approaches unless the mother is fed iodin, which increases it in both the maternal and fetal thyroid. One of the most valuable discoveries of recent years is that of Kendall,[18] who has isolated from the thyroid an active hormone, thyroxin, which contains the active principle of the thyroid gland.

CLINICAL OBSERVATIONS

It is the opinion that physiologic enlargement of the thyroid gland during pregnancy is greater and more frequently observed in patients living in goitrous localities than in those patients living in sections where goiter is less prevalent. However, from a very limited number of cases, I believe it occurs more frequently in nongoitrous communities than is generally supposed.

Doege[19] observed a noticeable enlargement of the thyroid gland at pregnancy in 8 per cent. of the patients living in the Great Lakes region. In 60 per cent. of these patients the symptoms were aggravated by pregnancy. Von Graff,[20] also working in a goiter district, observed goiter beginning in pregnancy in 9 per cent. of 654 cases. Markoe and Wing examined 1,586 pregnant women in a nongoitrous locality and found that in 6 per cent. the beginning of goiter could be traced to pregnancy. They observed that goiter occurred in a majority in the first pregnancy, and that the symptoms usually diminished after confinement, and were less severe with succeeding pregnancies. When goiter occurred among multiparas, it appeared on an average at the fifth pregnancy.

Ward shares the view of Lang,[21] who suggested that if the thyroid does not enlarge during pregnancy the patient is likely to develop nephritis and albuminuria. Von Graff found that eclamptic patients had less thyroid enlargement than normal patients.

The subjective thyroid disturbances are usually most pronounced during the first two or four months of pregnancy. After the fifth month, subjective improvement usually occurs or the symptoms increase and hyperplasia develops with or without exophthalmos. The patient with increasing symptoms of hyperthyroidism is liable to have hemorrhages and abort.

TREATMENT

If we bear in mind the pathologic changes that accompany hyperplastic or exophthalmic goiter, it is obvious that treatment which stops short of destroying a portion of the enlarged and hyperactive gland, will at times fail to afford relief from the acute symptoms, and will also fail to prevent recurrence when the hyperplastic although quiescent goiter is subjected to any unusual strain such as pregnancy, parturition, grief, worry, infection, etc. This is well shown in the accompanying case reports.

It is generally agreed that any operation on the thyroid during pregnancy is attended by more danger than when performed on the nonpregnant patient, and for this reason a majority of surgeons are opposed to thyroid operations during pregnancy unless the goiter causes serious difficulty in breathing.

I have secured good results with quinin and urea injections made directly into the gland, to produce localized aseptic necrosis of a portion of the hyperplastic thyroid. The procedure is without the danger to mother and child that attends partial thyroidectomy. Obstetricians, surgeons and internists agree that any procedure for the treatment of goiter must be based on a period of rest, with medical, dietetic and hygienic measures suited to the needs of the individual patient.

Organotherapy has an established place in the treatment of goiter in pregnancy associated with neurasthenia or deficient thyroid function. When a woman shows thyroid insufficiency or kidney disturbance or has a history of having had these conditions, with the beginning of a pregnancy she should receive thyroid continuously throughout gestation in doses suited to her requirements. It should not be stopped before parturition even though symptomatic improvement occurs. Culbertson[22] believes that the relationship between the ovary and thyroid is complementary. If there is evidence of ovarian deficiency, corpora lutea or the whole gland extract should be given.

In the presence of hyperthyroidism, if the symptoms steadily become worse in spite of conservative measures, it may be necessary to empty the uterus to afford relief to the mother. The danger of eclampsia occurring is increased at this time, and it may appear without the presence of albuminuria or casts. The ammonia nitrogen is the best index of impending eclampsia, and while a normal amount is about 5 per cent., when it reaches 15 per cent. or more, the uterus should be emptied without delay unless the ammonia nitrogen can be reduced. If the ammonia nitrogen test is not available, the blood pressure should be watched closely throughout pregnancy.

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[13] Hoskins, R. G.: Am. Jour. Physiol., 1910, **26**, 426.

[14] Beibtreu Deutsch. med. Wchnschr., 1910, **33**, 15.

[15] Smith, G. E.: Jour. Biol. Chem., 1917, **29**, 215.

[16] Tatum, A. L., and Mills, C. A.: Personal communication to the author.

[17] Marine, D.: Surg., Gynec. and Obst., 1917, **25**, 272.

[18] Kendall, E. C.: Personal communication to the author.

[19] Doege, K. W.: Wisconsin Med. Jour., 1915-1916, **14**, 49.

[20] Von Graff: Deutsch. Gesellsch. f. Gynäk., May, 1913.

[21] Lang: Jahresb. f. Gynäk. und Geburtsh., 1898-1899.

[22] Culbertson, C.: Surg., Gynec. and Obst., 1916, **23**, 667.

Cesarean section is the treatment of choice. The high abdominal incision of Markoe and Davis is very satisfactory. Gellhorn advocates vaginal section under spinal anesthesia. Webster[23] uses local anesthesia for abdominal section.

Obstetricians generally agree that the induction of labor in these cases is seldom indicated because it is too slow and uncertain and more dangerous than cesarean section.

REPORT OF CASES

Time permits only brief mention of the case reports. I believe the following to be of more than usual interest:

Case 1.—Mrs. E. B., aged 27, during her first pregnancy in 1909, developed exophthalmic goiter not relieved by parturition. A year later, the right lobe of the thyroid was removed. Because of her poor general condition, the surgeon did not operate on the enlarged left lobe. Relief lasted for six months, when all the symptoms gradually recurred. Another surgeon believed her symptoms due to the appendix, and performed appendectomy without relief. She again became pregnant in 1911, and gave birth to a poorly developed, nervous child. Her symptoms increased and she was treated from time to time for hysteria, neurasthenia and epilepsy. I saw her first in March, 1914, when she presented well marked symptoms of exophthalmic goiter. In addition to the usual medical treatment, she received a number of injections of quinin and urea into the enlarged left lobe. Her improvement was slow but steady, and within a year her symptoms and goiter had disappeared. There was no recurrence, May, 1918.

Case 2.—Mrs. W. B., aged 29, noticed a small goiter with symptoms during her first pregnancy in 1913. Her condition did not improve after parturition. She became pregnant again in July, 1916, and because of increasing symptoms, consulted me in October, when she presented well defined symptoms of exophthalmic goiter, with increasing pressure symptoms from the growing tumor. The usual medical measures were advised and quinin and urea injections were given into the thyroid. Symptomatic relief was prompt, and the goiter disappeared before parturition, when she gave birth to a healthy, robust child. In May, 1918, this patient writes that she is in good health, with no evidence of her former symptoms or tumor.

Case 3.—Mrs. W. K., aged 35, had a normal first pregnancy in 1909. During her second pregnancy, in 1911, a small goiter was noticed with increasing symptoms as parturition approached. The symptoms were slightly lessened by delivery, and were aggravated by a third pregnancy in 1914, and a fourth in 1915. I first saw this patient in January, 1917, when she presented advanced exophthalmic goiter with marked dilatation of the heart, and weighed 91 pounds. Besides the usual medical treatment, she was given injections of quinin and urea into the thyroid gland. After the second month the goiter diminished, in three months the general symptoms began to improve, the exophthalmos lessened and she had gained 9 pounds in weight. Six months later the goiter had disappeared, the general health was good and she weighed 124 pounds. In May, 1918, she wrote that she did most of her housework the previous year, that the exophthalmos had disappeared, and that she weighed 130 pounds.

Case 4.—Mrs. C., aged 35, had one healthy child 2 years old. When I first saw this patient in January, 1915, she was four months pregnant and gave a history of exophthalmic goiter beginning two months before. Prompt improvement followed quinin and urea injections in conjunction with the regular medical treatment. She went to term and had a normal delivery, with no return of the goiter or symptoms up to May, 1918.

CONCLUSIONS

1. Preexisting goiter, either simple or toxic in type, is usually aggravated by pregnancy.

2. It is believed that the symptoms and growth of hyperplastic goiter in pregnancy can usually be controlled by quinin and urea injections into a portion of the thyroid gland.

3. Should symptoms progress in spite of conservative measures, a rapid delivery is indicated. If the child is viable, cesarean section should be done.

4. Operation on the thyroid is indicated to relieve pressure symptoms of solid goiters. Cystic goiter may be promptly relieved by quinin and urea injections.

5. Pregnant women with subthyroid conditions should receive iodids or thyroid throughout gestation.

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ABSTRACT OF DISCUSSION

Dr. James W. Markoe, New York: In reviewing my records I find that in 1,586 cases of pregnancy there were 132 goiters, only eight of which were toxic or hyperthyroid diseases. In twenty-eight years 100,000 obstetric cases have been under my observation, and there was only one case of operative interference for thyroid complication. This was a rather interesting case because it was the woman's ninth child and my brother had previously removed the right lobe of the thyroid. When the woman came into the hospital she was choking to death from the pressure on her trachea. She had no true hyperthyroidism. I therefore removed part of the left lobe, relieving the symptoms, and she made a good recovery. I am not so sure that pregnancy increases the symptoms of simple thyroid. That, I think, depends largely on the hygienic surroundings and the treatment given these patients. My plan has been to put them immediately in the open air, feed them well, endeavoring to keep them in the best of health. Notwithstanding, all the cases we have had, I do not think the number sufficient to come to a definite opinion concerning treatment.

The use of quinin and urea is similar to the use of boiling water employed by Charles Mayo and others and to the use of phenol and boiling water employed by Ochsner. The result of these injections is a marked edema in the tissues, sometimes with fatal issue. I think this result has occurred in one or two cases. Although Dr. Watson has reported some splendid results, I think we must sound a note of warning not to inject any of these substances at random. We may have complication of acute edema with sudden death. I have never seen a case of hyperthyroidism calling for interference during pregnancy. While cesarean section might be done, it seems to me that unless a case has not been observed until entering the hospital, general hygienic treatment and general treatment of the goiter might possibly so improve the patient's condition that operative measures could be prevented. In a case in very serious condition, even the shock of the cesarean section, and there is a shock in cesarean section, might cause death, just as might the disease. I would urge that more careful observation be given cases of pregnancy and better records kept so that more valuable statistics may be secured. There must be thousands and thousands of cases of goiter in pregnancy in which careful observation would add greatly to our knowledge and to the benefit of the patient.

Dr. C. H. Mayo, Rochester, Minn.: This is an interesting subject to all of us who deal with pregnant women, and to those of us who deal with the thyroid from the clinical standpoint. If iodin is supplied to the thyroid the gland becomes reduced since it does not have to do so much work. It seems to me that if pregnant women who have goiters could get iodin the thyroid would convert it into the thyroidal iodin that is needed in the body. I have seen patients with exophthalmic goiter run through three pregnancies, and they were very much better during the pregnancy period than they had been preceding it. Some such patients are worse during the pregnancy period. I do not care to operate on the pregnant woman with goiter. If possible, she should be tided through pregnancy. In many instances, after the birth of a child, the goiter will disappear almost wholly. Some time ago I watched the work of Dr. Crile, who injected into the tissues about the operative field quinin and urea to block the innervation. It struck me that there was not so much in the blocking, but that if the infiltration did block, why should we not inject the gland itself and create the edema within its own capsule, as in cloudy swelling of the kidney, that would check off the secretions and the ability to take the blood supply. I began making these injections about three years ago, and have reported some cases. The action is about the same as in the injection of boiling water, though much less severe. I have had three patients with exophthalmic goiter die from the injection of hot water. They were treated in their beds to prevent shock; the water was probably not hot enough to coagulate albumen, and possibly more easily enabled the gland to throw off the hormones of secretion. I used the quinin and the urea to make a block within the substance of the gland itself, and not so much as a destroying agent. Many of these cases are necessary for a determination of the best treatment. I am inclined to believe that the tendency is toward improvement, and that in only the bad cases should any form of surgery be done during pregnancy.

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[23] Webster, J. C.: Surg., Gynec. and Obst., 1913, 17, 294.

Dr. Leigh F. Watson, Chicago: No deaths or alarming symptoms have followed the injections. There are several reasons why massive injections should never be given. I inject only 5 or 10 minims of the solution at a time, repeating the treatments at one to three day intervals.

THE PREVENTION OF GAS PAINS

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During the last decades, rapid progress has been made in all fields of modern medicine. Many a tradition based on the experiences of the fathers had to fall before the logic and research of modern investigators. Nevertheless, there is a tendency to put tradition above new ideas because the valuable experiences of the earlier observers have apparently proved efficacious for one or another period of medicine. Furthermore, the medical student, who has received in his early training didactic teaching which offers many medical traditions in the form of strict rules, becomes so deeply impressed that it seems to him that medical sacrilege is committed if the teachings of his school days are attacked. The modern history of medicine tells of many hard struggles in which medical traditions were attacked for long periods before they were finally abandoned.

One of the best examples of this is the old custom of purging and dieting, in other words, "carefully preparing" patients before operations. The underlying idea of this habit developed in the dark ages of medicine. Alvarez,[1] in a review of the history pertaining to this subject, traces the development of the custom of purging back to the days when humoral pathology dominated the minds of all medical men. Humoral pathology fell, but the custom of purging before operations remained and became an iron-clad rule in surgery.

Voices of protest have been raised from time to time, but apparently without result. No attempt has been made to collect all of these protests because many are buried in articles pertaining to other subjects and consequently are hard to uncover. Among the more recent observers on the clinical side of this question, Harris[2] in 1905 warned against purging in acute abdominal infection, but neglected to speak about purging in general. Walker,[3] in 1906, reported that he had not used purgation in his preoperative preparation for more than two years, and that he was convinced that his patients suffered less with tympany, and recovered more quickly. Moore[4] reminds us that ordinarily we would rather not operate on a person weakened by diarrhea; we would rather build him up first. He also reports favorable results in the disuse of preoperative catharsis. Quain,[5] in 1912, commented on the less stormy convalescence of patients who had not been purged. Those of his patients who had been carefully prepared developed the worst cases of meteorism in spite of most careful handling of the viscera. He had been using the new technic for one year and was delighted with his results. In 1914, Crile[6] warned against starving and purging before operation, because it interfered with the normal tone of the intestine. About this time Bloodgood[7] stated that since he had stopped giving cathartics within forty-eight hours before the operation, he had had less trouble with intestinal paresis and distention.

EVIDENCE FROM EMERGENCY OPERATIONS

Further proof of the harmfulness and needlessness of "intestinal preparation" can be obtained from the experience of surgeons with emergency operations. Nobody will deny that the woman with an acute appendicitis, a tubal pregnancy or a cesarean section will usually recover from the operation with little abdominal distress besides that occasioned by the wounds. On the other hand, the "carefully prepared" patient who has been operated on for chronic appendicitis or who undergoes an exploratory laparotomy will often be troubled with most distressing gas pains and distention. In spite of all these observations, preoperative purging is still being practiced by many who simply follow tradition. The old argument that a nonprepared bowel does not pack off well in a laparotomy is, I think, faulty, if we remember with what ease the bowel can be packed off in emergency cases. I still recall those distressing hours during my early internship when we attempted to keep the distended and well purged bowel from rising into the incision. Those who have had occasion to do experimental work in animals (never purged) will also remember that the bowel never tends to escape from their abdomens. Some surgeons purge so that the bowels may be empty in case peritonitis should follow. Fortunately, postoperative peritonitis is rare, and if purging interferes with gas absorption, as shown by experimental evidence, such a bowel, deficient in its power of gas absorption, will present an increased danger, since peritonitis of itself tends to produce tympany.

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[1] Alvarez, W. C.: Surg. Gynec. and Obst., to be published.

[2] Harris, M. L.: Dangers from Indiscriminate Use of Cathartics in Acute Intestinal Conditions, The Journal A. M. A., Feb. 25, 1905, p. 622.

[3] Walker, Edwin: Am. Jour. Obst., 1906, **54**, 722.

[4] Moore, J. E.: Surg., Gynec. and Obst., 1908, **6**, 281.

[5] Quain, E. P.: Some Observations on Catharsis, The Journal A. M. A., July 6, 1912, p. 27.

[6] Crile, G. W., cited in Conservation of Energy, Therapeutics, The Journal A. M. A., Jan. 10, 1914, p. 129.

[7] Bloodgood, J. C.: Prog. Med., December, 1913, p. 216.

As long as only clinical objections had been raised, the idea of abandoning purging before operation did not find ready ears among the surgeons. It is true that of late there has been a decided tendency to moderate the purging. If we may judge, however, from recent books and articles on surgery, the custom of purging seems to have as strong a footing as it ever had in didactic teaching. Further proof had to come from the laboratory to support and confirm our clinical observations.

RESULTS OF EXPERIMENTS ON ANIMALS

It has now been shown by experiments on animals that preoperative catharsis is harmful rather than beneficial. Alvarez and Taylor[8] purged a number of rabbits and then compared the behavior of excised segments from these animals with that of segments from normal animals. They found that purged animals are apathetic and sick-looking, that the excised segments of small intestine of these animals showed a rapid fatigue, and that they were less sensitive to drugs applied locally. They found further that the majority of purged animals showed increased intestinal gas and often a congestion of the mesenteric circulation. Most important of all, there was an upset in the gradient of muscular forces from duodenum to ileum—that gradient which Alvarez[9] has shown to be so essential to the even progress of food and gas toward the anus.

This work is in agreement with that of other laboratory workers who have studied the problems of flatulence. Schmidt[10] pointed out in 1909 that congestion of the abdominal circulation leads to the collection of gas in the intestine. The same was observed by Kan Kato,[11] who proved that clamping of the portal vein prevents the absorption of carbon dioxid from the intestine. This bears out the theory that disturbances in the portal circulation, such as are caused by cirrhosis or cardiac disease, will interfere with the gas absorption. Schierbeck[12] in 1893 and Woodyatt and Graham[13] in 1912 carried this problem still further and found that the blood not only fails to carry the gas away but may even exhale some into the bowel. That gas absorption takes place in man is proved by rectal ether anesthesia, introduced by Pirogoff[14] in 1847 and used in this country first by Cunningham and Lahey[15] in 1905. Kader[16] tied off loops of dog's intestine and returned them to the abdomen for several hours. He found it made very little difference whether or not he washed these loops out with salt solution or filled them with intestinal contents from adjoining loops. Very little gas was found in either case. When, however, the mesenteric circulation was interfered with, especially on its venous side, an enormous accumulation of gas occurred. The congestion of the bowel after purgation has been observed also in men at the time of operation.

COMPARISON OF PURGED AND NONPURGED PATIENTS

The essential thing now is to get careful reports on the preoperative courses of a large unselected series of purged and nonpurged patients.

The first stimulus in making personal observations in this field was received in 1915 in the Women's Clinic of the University of California Medical School. I was able, then, to compare a number of unselected cases, in which some of the patients had been carefully prepared with castor oil and enemas while the others had received a cleansing enema shortly before the operation. The differences in the postoperative courses were striking. The patients who had no preparation except the enema were usually comfortable unless their operations had been very severe, while the others were often troubled with more or less severe tympany and distress, which taxed all the therapeutic ingenuity of the resident staff. At that time, it was also the custom to give the rectal drip to every patient, usually black coffee and physiologic sodium chlorid solution, half and half. It did not occur to any of us that the rectal drip might contribute very much to the discomfort of the patients, until one day it was noticed that some patients vomited a dark brown fluid which later proved to be coffee. On observing carefully, I gained the impression that the unpurged patients were not only freer from gas pains but would not develop sufficient reverse peristalsis to vomit the enema. During the next two years, the rectal drip was practically abandoned, but castor oil was still given to about two thirds of the patients, with the results previously recorded.

Since joining the staff of the Women's Clinic of the Leland Stanford Junior University, I have carefully recorded the severity of the pains experienced by the patients after a hundred major operations. In most of these cases, the peritoneum was opened and a great variety of pelvic work done. The first fifty were prepared in the old way, that is, 1 ounce of castor oil was given the night before the operation and a liquid diet was prescribed with no breakfast and an enema of soap suds early in the morning at about 6 o'clock. The next fifty patients received no purgation. The results are shown in the accompanying table.

INCIDENCE OF PAINS IN ONE HUNDRED MAJOR OPERATIONS

	With Purging		Without Purging	
	Number of Cases	Per Cent.	Number of Cases	Per Cent.
Severe gas pains	11	22	1	2
Mild gas pains	15	30	2	4
"Cramps"	11	22	14	28
No gas pains	13	26	33	66
Totals	50	100	50	100

The second fifty received an enema the night before the operation and early in the morning. General diet was given the night before the operation, if the operation was to be in the morning, and also a light breakfast if the patient was to be operated on in the afternoon.

It should be noted that the types of operation, as well as the operators, were about the same in the first fifty as in the second. In fact, there were a good many more operations in the second fifty in which the viscera had to be handled more roughly on account of adhesions. There were also a greater number of complete hysterectomies with vaginal drainage in the second fifty. Consequently, even if the number of cases observed is small, the results seem very definite.

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[8] Alvarez, W. C., and Taylor, F. B.: Changes in Rhythmicity, Irritability and Tone in the Purged Intestine, Jour. Pharmacol. and Exper. Therap., 1917, **10**, 365.

[9] Alvarez, W. C.: The Motor Functions of the Intestine from a New Point of View, The Journal A. M. A., July 31, 1915, p. 388.

[10] Schmidt, Adolf: Klinik der Darmkrankheiten, 1913, pp. 219, 440.

[11] Kato, Kan: Int. Beitr. z. Path. u. Therap. d. Ernährgst, 1910, **1**, 315.

[12] Schierbeck, N. P.: Skand. Arch. f. Physiol., 1893-1894, **5**, 1.

[13] Woodyatt, H. J., and Graham, E. A.: Tr. Chicago Path. Soc., 1912, **8**, 354.

[14] Pirogoff, N. I.: Recherches practiques et physiologiques sur l'etherization, St. Petersburg, 1847.

[15] Cunningham, J. H., and Lahey, F. H.: Boston Med. and Surg. Jour., 1905, **152**, 450.

[16] Kader, B.: Deutsch. Ztschr. f. Chir., 1891, **33**, 57.

It is sometimes hard to diagnose mild gas pains, and quite often only the suggestion of the term will make a patient complain. Nurses, also, will call anything gas pains that is associated with pains in the abdomen after operation. As long as there is no sign of even mild tympany, I have not felt myself justified to speak of gas pains but rather term them "cramps." These cramps are said to be relieved often by a rectal tube and therefore "must be gas pains," but I have found that they are also relieved by anything that will bring back a smooth downward peristalsis, as for instance by a glycerin suppository or an enema which does not bring flatus, and above all, by food. The empty bowel seems to contract violently in certain segments; and since the stimulus for a rhythmic downward motion, that is, food, is missing, peristalsis seems to churn back and forth in certain segments, producing "cramp-like" pains, which some of our patients likened to the sensation following the administration of compound cathartic pills. Estimating the number of patients with "cramps," I have, perhaps, been very liberal, as I may have called "cramps" what in reality was pain in the operative field, which by coincidence disappeared after the patient had partaken of solid food. Handling of the viscera undoubtedly predisposes to gas pains. In the second half of the cases observed all the patients that had gas pains had dense adhesions, which had to be broken up. They also had vaginal drainage, and I recall that as soon as the drain was removed, gas pains ceased at once in a few of the patients.

As far as the bowel at operation is concerned, none of us had any difficulty in packing off. I myself believe that the nonpurged bowel always appears normally pale and well collapsed, while the purged bowel has a slight distention and a dusky hue. I would emphasize particularly that the large bowel was sufficiently cleansed by the enema alone. No difficulty was encountered on that score. At the present time, preoperative purging has been stricken from the ward rules. Our patients seem to be better off, and much work and worry in treating gas pains has been eliminated.

GAS PAINS IN HERNIA

While the foregoing observations were being made, we found that the hernia patiens were often bothered with severe gas pains. At my suggestion, Dr. John F. Cowan stopped the giving of castor oil to these patients before operation. A few were still given a mild laxative forty-eight hours before operation. With the permission of the members of the general surgical staff, I observed twenty-six laparotomies, including fifteen herniotomies and six appendectomies. Here again the results were very promising. Among the hernias there was not one case of severe gas pains. There was only one case of mild distention and practically no cramps, while in all the appendectomies the patients had been free from any abdominal distress. I have not counted in the patients who received the mild laxative, as they would spoil the argument. Dr. Emmet Rixford told me lately that he has made quite similar observations in his long practice, and that he also believes purging is not beneficial, and as far as technic is concerned, it can be dispensed with. He still feels that it is good practice to clear the bowel four or five days before operation with a mild laxative in order to remove any possible impacted fecal material.

It is not within the scope of this paper to discuss the treatment of gas pains. It may be said, though that all treatment should tend to restore normal peristalsis. The best stimulus for this is food, and the earlier it is given, the better for the comfort of the patient. In many patients, especially those that have not been purged, the bowel will perform its function normally as soon as solid material finds its way into the bowel, and quite often even mild laxatives may be dispensed with.

The watchword of modern medicine is "prophylaxis." We have applied it to the operating room by developing asepsis to its highest degree. Do not let us stop there, but consider prophylaxis also for the postoperative condition of our patients. Let us eliminate untimely purging, one of the biggest factors in producing gas pains.

SUMMARY

1. Clinical and experimental observations strongly suggest that preoperative purging is a strong factor in the producing of gas pains.
2. At operation the strongly purged bowel is more difficult to handle than the unpurged bowel on account of congestion and distention.
3. An enema will clear the lower bowel sufficiently for any operative work.
4. Patients who have not been purged are comparatively free from gas pains.

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MOISTURE IN THE AIR SPACES OF THE LUNGS AND OXYGEN THERAPY *

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While on duty at a casualty clearing station in Flanders in the summer of 1917, I observed several respiratory phenomena associated with foam in the air passages which conferred an entirely new significance on the presence of moisture in the bronchial tree.

The patients who exhibited these symptoms were men who inhaled phosgen and chlorin. These patients had, essentially, a large amount of plasma poured into the air spaces of the lungs, which was not secondary to incompetence of the left ventricle. It was a severe primary edema of the lungs unassociated with myocardial incompetence.

One of the things that impressed me was the disproportion between cyanosis and air hunger. The evidence of cyanosis was very much more pronounced than was air hunger in most of the patients.

Another very striking experience was the manner in which patients were relieved of cyanosis by the inhalation of oxygen, and the fact that the relief of cyanosis was not attended with any change in the volume or rate of respiration; and subjectively the patients were not made more comfortable from the inhalation of oxygen.

If a gassed patient, whose bronchial tract is filled with foam and who has cyanosis, breathes pure oxygen, he is relieved of cyanosis, but the relief does not come promptly. It is unlike relief from cyanosis which has been caused by laryngeal obstruction. When a

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patient suffering from cyanosis due to laryngeal obstruction has the obstruction relieved, cyanosis disappears within a few seconds and the patient is instantly made comfortable. The gassed patient was not relieved of cyanosis until after he breathed pure oxygen for from three to five minutes. The patients could not tell when they were breathing oxygen and when they were breathing atmospheric air. In fact they preferred to be relieved of having a mask over their faces, although this method gave them the greatest relief from anoxemia. Evidently the psychic effect of the obstructing mask contributed to their discomfort and they begged to be relieved of it. They preferred to have the stream of oxygen conducted into their respiratory tract by way of a soft rubber tube inserted in the nostril, although by this method I did not see a single case in which cyanosis was diminished. It is quite apparent that cyanosis and air hunger did not develop apace with each other and that anoxemia could be relieved without giving any relief for air hunger. The problem that requires an explanation is how anoxemia and air hunger are largely dissociated when the patient is breathing atmospheric air, and why only cyanosis is favorably affected when the patient breathes pure oxygen.

It has been suggested the dissociation is due to the film of moisture which intervenes between the ventilating air and respiratory membrane. Carbon dioxid is twenty-five times as soluble in water as oxygen, and consequently the escape of carbon dioxid from the blood is much better fulfilled than the absorption of oxygen. Carbon dioxid can escape from the blood, but oxygen is absorbed in much smaller amounts. This explanation obviously will not satisfy the clinical experience. If, according to the predicate on which this theory is advanced, the patient is suffering from anoxemia and has an adequate escape from carbon dioxid acidosis, then the abrogation of anoxemia should give the patient perfect comfort. There is another point about this theory which is not consistent with the facts. Plasma in the bronchial tree and respiratory units does not lie as a film of moisture but occupies the air space as foam. At the end of an expiration, the entire air space of the lung from the nares to the respiratory membrane is occupied by foam. The total volume of this foam must amount to at least 1,200 c.c. and during inspiration all the contained foam is aspirated into the air spaces and will be unequally distributed throughout the respiratory units. Some units will be filled with foam, and no doubt many units will contain no foam whatever. This foam is alveolar air foam and when it has acquired the same partial pressure of carbon dioxid as the affluent blood to the lung, all escape of carbon dioxid from the blood into the unit occupied by foam will be impossible. When a respiratory unit is full of alveolar air foam, the only area for escape of carbon dioxid will be the cross section of bronchi which supply any portion of the lungs thus affected.

The fact that the circulating blood in the lung of a normal person at rest is able to contribute 20 c.c. of carbon dioxid to the ventilating air during each respiratory cycle is due to the large area of the respiratory membrane.

The following experiment illustrates the significance of the area of the cross section of a communicating path between two fields of different partial pressures of a gas.

Two 3-liter bottles were furnished with a connecting tube which was 20 cm. long and had a diameter of 1.5 cm. One bottle contained 19.5 per cent. of carbon dioxid and the other bottle contained 0.1 per cent. carbon dioxid. Both were at barometric pressure. The communication between the two bottles was established and specimens of air were taken from each bottle by employing a device which enabled us to remove specimens of air from each bottle without disturbing the barometric pressure.

The results summarized in Table 1 give the comparative concentration of carbon dioxid in each bottle at a given time.

TABLE 1.—COMPARISON OF AIR SPECIMENS IN CARBON DIOXID CONTENT

Time	Percentage Carbon Dioxid in A	Percentage Carbon Dioxid in B
11.35	0.1	19.5
11.45	1.25	18.2
11.55	3.25	17.0
12.55	3.75	15.3
1.25	4.85	13.9
2.40	6.20	11.4

The same experiment was then repeated by using a connecting passage of the same length as in the first experiment but with a lumen of 5 cm. The results obtained are set forth in Table 2.

TABLE 2.—COMPARISON OF SAME SPECIMENS AS IN TABLE 1, WITH LUMEN OF 5 CM.

Time	Percentage Carbon Dioxid in A	Percentage Carbon Dioxid in B
11.30	13.7	1.2
11.40	7.3	7.0
12.00	6.4	6.4
12.20	6.4	6.3

This simple experiment is given merely to cite the fallacy in thinking of partial pressure as synonymous with barometric pressure. It also enables one to visualize the significance of communicating areas in establishing equilibrium of partial pressure between two gas fields of different concentrations.

VENTILATION OF PULMONARY BLOOD

If a respiratory unit is filled with alveolar air foam, then the area for the evolution of carbon dioxid is manifestly cut down from the large area of the respiratory membrane to the cross section of its bronchiole, and if at the end of an expiration the entire air space of the lung is filled with foam, the only area for the escape of carbon dioxid is the cross section of the trachea. It seems perfectly clear that any portion of the respiratory membrane which is covered by alveolar air foam will be deprived of its normal respiratory function, both for the escape of carbon dioxid and the absorption of oxygen. If at the end of a deep inspiration there is an unequal distribution of foam throughout the air spaces, different portions of the pulmonary blood will be ventilated in different degrees. If the patient takes a deep inspiration of 2,000 c.c., he will then have superventilation of some of the air spaces, and consequently, superventilation of the blood in these respiratory units, but the air spaces occupied by foam will be eliminated from the respiratory function. Consequently, we shall have admixtures of varying degrees of venous and arterial blood going to the left auricle. From the superventilated unit there will be contributed an effluent blood with saturated oxyhemoglobin and a partial pressure of carbon dioxid less than normal. From the foam units there will be contributed a blood with a high carbon dioxid content and a low oxygen content. The total effluent blood from the lung under such circumstances will then contain an increase of carbon dioxid partial pressure and a low oxygen content. The superventilated units compensate in some measure for the want of ventilation in the foam units, so far as the partial pressure of carbon dioxid is concerned, but they cannot compensate for anoxemic blood which comes from the foam units and this I conceive to be the source of the disparity between anoxemia and air hunger in gas poisoning.

Now what will happen if the patient breathes pure oxygen? When pure oxygen is breathed, it will require several minutes before the alveolar air foam will have been changed to oxygen foam, and when the oxygen foam is once formed, what will have been accomplished for respiration? The foam units will have their entire respiratory membrane exposed to oxygen foam, and thus the area for the absorption of oxygen will have been many times increased. What has been accomplished for the ebullition of carbon dioxid? That will remain the same as when the patient is breathing atmospheric air and leaves the carbon dioxid content of effluent blood of the lung unchanged; but anoxemia will have been disposed of. This I conceive to be the explanation for the clinical fact that, after the inhalation of pure oxygen for a period of from three to five minutes, the patient regains a normal color but retains the same respiratory discomfort. This idea of the admixture of unrespired blood with the effluent stream has been ignored in clinical practice, yet we have an abundance of evidence that it occurs in congenital heart disease, occlusion of a single bronchus, lung consolidations, and moisture in the bronchial tree.

A child with an open ventricular septum and an open ductus botalli will be cyanotic, but has no air hunger when at rest. If he is given pure oxygen to breathe, the cyanosis remains unchanged. For under such circumstances the unrespired blood does not come in contact with the respiratory membrane. If the child exercises, cyanosis, as well as partial pressure of carbon dioxid in the aortic blood, will rapidly increase. Consequently with exercise, cyanosis and air hunger increase in equal paces.

If such a patient is instructed, while quietly sitting, to employ forced breathing for three minutes, cyanosis will diminish. But under these circumstances, ventilation of the lung and oxygenation of the blood and minute volume flow of blood through the lung will all be greatly increased. Thus when, in morbus caeruleus, ventilation is increased disproportionately to the increase in gaseous metabolism, anoxemia lessens and the carbon dioxid partial pressure in the blood will have greatly diminished. In morbus caeruleus we have an admixture of superventilated blood, in which there is a low partial pressure of carbon dioxid and a normal oxygen content, with another stream of blood which has a high carbon dioxid and a subnormal oxygen content. Consequently, there will be a disproportion between cyanosis and air hunger.

It is perfectly clear that in any disease in which unrespired blood is contributed to the aortic stream, the partial pressure of carbon dioxid and oxygen of the alveolar air cannot be accepted as the measure of the partial pressure of carbon dioxid and oxygen in the aortic blood. Gas analyses of alveolar air are applicable to the circulating blood only when every portion of the respiratory membrane exposed to ventilating air has also a normal exposure to circulating blood. Furthermore, in every part of the lung from which blood is contributed to the aortic stream, there must also be a normal exposure of the respiratory membrane to ventilating air. If these two conditions are not fulfilled, then interpretations from gas analyses of respired air will be erroneous.

CYANOSIS IN LOBAR PNEUMONIA

In lobar pneumonia there is always a certain amount of cyanosis. It is a common thing to see a patient with lobar pneumonia who has pronounced cyanosis and although the patient has moderate hyperpnea, he will deny any sensation of air hunger when he is questioned on the point. If blood flow through the pulmonary vessels of the consolidated lung is maintained, then the effluent blood from the consolidated lung must be venous blood. The superventilation of the uninvolved portion of the lung will compensate for the increased carbon dioxid contributed to the aortic stream from the consolidated lobe, but superventilation of the uninvolved parts of the lung will not compensate for the anoxemia which is contributed from the hepatized lung. In this mechanism we see an explanation for cyanosis without air hunger in lobar pneumonia. The cyanosis is due to anoxemia and not to methemoglobin, for when the shed blood is exposed to atmospheric air, it immediately takes on the normal color of shed blood. The anoxemia is not in any way associated with the infection. It is due purely to the admixture of unventilated blood with the aortic stream. When pneumonia terminates in crisis, cyanosis persists, and finally disappears just as the exudate is absorbed and ventilation of the affected lung is resumed.

The alveolar air of a pneumonia patient cannot be taken as an expression of the gaseous content of the aortic blood. One need only to estimate the carbon dioxid and oxygen content of the alveolar air of a pneumonia patient to be convinced of the fallacy. The patient will be cyanotic but in spite of this the partial pressure of oxygen in the alveolar air will be higher than in a normal person and the carbon dioxid partial pressure will be lower than normal.

During the past winter I have had many opportunities to test out lobar pneumonias. All the patients had cyanosis and the cyanosis was proportionate to the area of the lung which was involved, and was not at all associated with cardiac incompetence.

For instance, if one lung is hepatized and the other lung contains no moisture, the patient will have pronounced cyanosis with superventilation, but he will not admit that he has air hunger. If such a patient is given pure oxygen to breathe, cyanosis is unaffected. But if the patient has one lobe hepatized and an abundance of moisture in the remaining portions of the lung, then the inhalation of pure oxygen will partly diminish the cyanosis, but the experience of air hunger is unmodified. I think this accounts for the different views on the subject of oxygen therapy in pneumonia. A patient who is cyanotic from both lung consolidation and moisture in the air spaces will benefit from the inhalation of oxygen so far as anoxemia derived from the edematous lung is concerned, but he will not benefit by anoxemia so far as the consolidated lung is concerned.

A further proof of the origin of cyanosis in pneumonia lies in the fact that occasionally we see a patient in whom cyanosis is very pronounced and then ceases without change in the exudate. Thus I have in mind two patients, one of whom was seen by Dr. R. G. Pearce and one by myself. Each had one entire lung consolidated, with normal heart and normal blood flow, so far as could be determined by physical examination, and no signs of moisture in uninvolved portions of the lungs. Then within twenty-four hours cyanosis ceased, although there was not the slightest evidence of improvement in the infection or improvement in consolidation of the lung. The only explanation I have for such a phenomenon is that during the course of the pneumonia the blood flow through the pulmonary vessels of the consolidated lung was greatly diminished at the time when cyanosis ceased.

The patient seen by Dr. Pearce died the day after the cyanosis disappeared, and the other patient under my observation, at Lakeside Hospital, made a good recovery.

Thus far there has been presented no direct evidence on which we can estimate the blood flow through the pulmonary vessels of a hepatized lung. It seems very reasonable to believe the blood flow through a hepatized lung is diminished by the loss of respiratory extension and retraction even when the pulmonary veins and arteries are patent. The anoxemia of lobar pneumonia and the fact this anoxemia is uninfluenced by the patient's breathing pure oxygen is very satisfactory evidence of the fact that an unrespired blood flow through the consolidated lung is the source of anoxemia. And the fact that anoxemia may cease or grow less during a period when fever, hepatization and the cardiac output are unchanged seems to be converse proof of the correctness of the theory.

It is a common experience to find patients with pleurisy with effusion sufficiently large completely to eliminate the lung of the affected side from respiratory function, and yet the patient may not have the slightest trace of cyanosis. In the compressed lung there is not only a want of ventilation but there is also a great diminution in the minute volume of blood going through the pulmonary circulation of the compressed lung. Consequently, there is little or no unrespired blood contributed to the aortic stream. This view will explain the want of cyanosis in many chronic tubercular diseases of the lung, and will also explain the presence of cyanosis in acute miliary tuberculosis.

In the chronic tubercular lung the ischemic process and the progress of infiltration go hand in hand. Consequently as a portion of the lung is eliminated from the respiratory function, its pulmonary circulation is encroached on, therefore such an involved portion of the lung will not contribute unrespired blood to the aortic stream. But acute miliary tuberculosis is accompanied by an abundance of moisture in the air spaces which will contribute unrespired blood to the aortic stream.

TWO CASES OF CARDIAC INCOMPETENCE

In former years we conceived air hunger and cyanosis accompanying incompetence of the left heart to depend on the diminished minute volume of blood passing through the lung. But since the rôle of moisture in the air spaces has assumed greater importance in our estimates of air hunger and cyanosis, I have had the opportunity of testing two cases of cardiac incompetence associated with pulmonary edema.

A patient had chronic cardiovascular and renal disease with great dilatation of the heart and of the jugular veins, a large and sensitive liver, and general anasarca. The patient had intense air hunger and was coughing up great quantities of bloody foam. He was given pure oxygen to breathe by means of a mask connected with a rebreathing device, so that he breathed pure oxygen through a bag of oxygen which was inserted into the circuit. The carbon dioxid was removed from the expired air by a canister of soda lime which was introduced into the circuit. Breathing through this closed system for about three minutes was sufficient to change the patient's color from pronounced cyanosis to a normal pink color, but the patient experienced the same air hunger and the volume and rate of respiration were unmodified.

Another patient was brought into Lakeside Hospital suffering from a head injury. The patient was in coma. He had a dilated heart and a great abundance of foam in his bronchial tree. This patient was made to breathe pure oxygen through a closed system and the same thing happened as in the patient above described. The pulmonary edema and the volume and rate of respiration were all unmodified. But after inhaling pure oxygen for about three minutes the patient regained a perfectly normal color, which he retained for a period of about four hours, during which time he breathed pure oxygen through the closed system. At the end of that time he died from cardiac failure, and although he had cardiac dilatation, a filiform pulse and extreme pulmonary edema, he had no cyanosis when he breathed pure oxygen.

We have here exactly the same mechanism as was cited in cases of gas poisoning. The alveolar air foam was changed to oxygen foam. This compensates for the anoxemia that existed when atmospheric air was breathed, but it did not compensate for the increase in the partial pressure of carbon dioxid in the aortic blood.

A THIRD CASE

Another experience illustrates the diagnostic service of this point of view.

A man, aged 19, was known to have stenosis and insufficiency of the aortic valve with hypertrophy and dilatation of the left ventricle. Four days before entering Lakeside Hospital he had an initial chill, followed by fever. Cough and bloody sputum developed on the following day. Coarse and fine moist râles were heard over all of both lung areas. On the day previous to his admission to the hospital so severe a cyanosis developed that the attending physician and the family were alarmed. The patient was deeply cyanotic, but he did not suffer from air hunger. Hyperpnea, however, was pronounced.

Chest examination revealed an abundance of moisture throughout all the air spaces of both lungs, but there was nowhere marked dulness or any areas of bronchial breathing. The right auricle was not dilated. The cardiac signs revealed a marked enlargement of the left ventricle and a moderate enlargement of the right ventricle, with auscultatory and pulse indications of stenosis and insufficiency of the aortic valve.

On microscopic examination the sputum proved to consist of blood and plasma. The number of white cells had about the same proportion to the red cells found in normal blood. The sputum, in fact, consisted of transudated plasma with a large admixture of red cells.

The patient breathed pure oxygen through a closed system for rebreathing and after about three minutes all cyanosis disappeared without any change in the rate or amplitude of respiration. The fluoroscope was then used and this showed no area of infiltration in either lung and confirmed the dimensions of the several heart chambers as determined previously by percussion and palpation.

Three days after admission to the hospital the temperature was normal, the râles and cyanosis disappeared and the patient's heart and pulse continued to show the same physical signs as on admission.

This case was regarded as an instance of the disease described by Woillez. Had there been any hepatization of the lung, anoxemia would not have completely ceased with the breathing of pure oxygen.

MOISTURE IN CYANOSIS

Moisture may play an important part in the development of cyanosis in patients who have bronchitis, emphysema, and bronchiolar spasm. In the past we have underestimated the rôle of moisture in the production of anoxemia.

A young man who had bronchitis, with an abundance of moisture in his air spaces, had pronounced cyanosis of the lips and fingers. There was only a moderate hyperpnea. It did not amount to air hunger. There were no demonstrable areas of consolidation in the lung. The volume of the lung was very little increased, not enough, indeed, so that the pleural sinuses were filled with the lung. The patient's heart and vascular system showed no evidences of any circulatory impairment.

He breathed oxygen through the closed system and after he had inhaled it for about three minutes, all traces of cyanosis disappeared. But he breathed with exactly the same rate and volume as when he was breathing atmospheric air, and he could not detect any difference between his subjective experience when he was breathing oxygen and his experience when he was breathing air. This I conceive to be very important in estimating the functional disability in patients suffering from cardiorespiratory disease.

I am sure that in the past we have ignored the rôle of moisture in the air spaces and we have quite ignored the contribution of unrespired blood to the aortic stream. Nor has there been any attempt to point out the mechanism of this contribution in diseases of the heart and of the lung.

If, for instance, a patient with bronchitis and emphysema has cyanosis, and it can be demonstrated by inhalation of pure oxygen that the patient's anoxemia has its origin in moisture in the air spaces, then the indication for a change to a dry climate is perfectly clear. If his cyanosis is unmodified by inhalation of pure oxygen, then I think it is quite clear that the presence of moisture in the air spaces does not contribute to cyanosis and a dry climate will not improve his cyanosis.

The very simplest way in which unrespired blood can be caused to flow into the aortic stream is to stop a bronchus.

CYANOSIS INTERPRETED BY AN EXPERIMENT

About two years ago Dr. Pearce and I made a very simple experiment on a dog. A tampon of lamb's wool with a string attached was pushed down through a tracheal opening into the bronchus leading to the right lobe of the lung. This of course eliminated the right lobe from air ventilation but did not arrest the flow of blood through the pulmonary vessels. So far as the appearance of the buccal mucosa and the tongue of the animal was concerned, we could see no change in color. But during the time the tampon was in the right bronchus, blood was drawn from the femoral artery and put in test tubes under analine oil so the blood was not exposed to air. It was apparent during the period when the bronchus was blocked that the blood had a much darker color than when the bronchus was free. This was done repeatedly by withdrawing the tampon and replacing it, but at each time when the tampon was in place the aortic blood took on a venous hue. Whether the entire right bronchus or only the bronchus leading to the lower right lobe was occluded in each one of these trials was not determined, but from observations on the respiratory movement of the lobes, we believe the lower right lobe only was eliminated from ventilation in most of our trials.

In either event it is a very simple method of demonstrating how a certain proportion of unrespired blood going to the left auricle will produce cyanosis. In our clinical experience we usually see only the phenomena for which we have an interpretation. What we cannot interpret we fail to see. As our interpretation of cyanosis is improved and enlarged, cyanosis will be much more frequently recognized in clinical experiences.

In the study of respiratory phenomena of cardiorespiratory disease, the rôle of moisture must be carefully interpreted. If we employ analyses of alveolar air for interpreting the partial pressure of oxygen and carbon dioxid in the circulating blood, such interpretations must predicate a uniform tonometric function of the entire respiratory area.

If areas of the respiratory membrane are eliminated from the respiratory function and other portions are normally functionating then it is obvious that the respired air cannot be employed to interpret the partial pressure of carbon dioxid and oxygen in the blood. When the entire respiratory membrane is normally functionating, then such interpretations are justifiable. But the moment the rôle of moisture in air spaces comes into play, or the air spaces of the lung are filled with an exudate, without any change in the flow of blood through the pulmonary vessels to the affected part, there will be unrespired blood contributed to the aortic stream, and analysis of respired air will give wholly unreliable interpretations of blood gases.

SUMMARY

The significance of the foregoing observations lies in the recognition of dissociation between anoxemia and increased carbon dioxid content of the blood.

The carbon dioxid and the oxygen content of respired air are measures of transpiration between blood and alveolar air only when the entire minute volume of blood passing through the pulmonary circulation is exposed to a respiratory membrane which has a uniform exposure to the ventilating air of the lungs. Normal subjects and patients with stenosis of the trachea or larynx will conform to these premises. So may patients who have respiratory symptoms from disturbed responses or altered control of respiratory rate and rhythm from the central or peripheral nerve supply to the lungs. But the moment the process of ventilation or blood flow is modified so that the uniformity of transpiration in the entire lung between the circulating blood and ventilating air is disturbed, then analyses of respired air cannot be employed to interpret the carbon dioxid and oxygen content of the blood.

ABSTRACT OF DISCUSSION

Dr. Arthur D. Hirschfelder, Minneapolis: I would like to ask Dr. Hoover whether sodium bicarbonate would be of value in such cases, at least in some of the border-line cases?

Dr. Charles F. Hoover, Cleveland: It is the same with all irritant gases; all the acids produce exactly the same thing. What is your idea of the alkali?

Dr. Hirschfelder: You could take care of a certain amount of the carbon dioxid excreted from the kidneys by continuous intravenous infusion of sodium bicarbonate. It seems to me there might be some border-line cases in which that might turn the tide.

Dr. Charles F. Hoover, Cleveland: I doubt if you could do very much in the way of luring it off in the form of a carbon through the kidneys. There are not any border-line cases.

EXTENDING THE CARE OF PREGNANCY *

IRA L. HILL, M.D.
NEW YORK

The question of prenatal care, or in other words, the supervision of pregnancy in the interest of mother and child, is attracting a great deal of attention. Have we any new measures to report? Has the laboratory or the clinician recently brought to light novel methods of therapy or prophylaxis? As a matter of fact, very little has been added to what has been known for years about the care of pregnancy.

Yet some groups of women in this country are benefiting by good prenatal care and their mortality rate and that of their infants is being lowered, while the greater number suffer from inadequate care and the mortality statistics show the humiliating results.

For twenty years the death rate from childbirth for women in America has not decreased.[1] Meanwhile, many formidable diseases have yielded to medical science and claim fewer and fewer victims. Tuberculosis, typhoid, diarrheal diseases of infancy and diphtheria all show lower death rates, the latter a reduction of 50 per cent. It may be justly said that more new measures have been brought forward for the treament of these diseases. Nevertheless, the means already at our command, if we employed them generally, could reduce this mortality of mother and child. Among sixteen enlightened nations we rank fourteenth. Only Switzerland and Spain come lower on the list. Sweden has a death rate of less than half of ours.

REGULATION OF MIDWIVES

For some reason, women in America receive bad obstetric care. Yet physicians attend the confinements in America more generally than in the European countries. This is not a country where the midwife flourishes. In the larger cities, where there are extensive foreign populations, there are many midwives. In New York, for example, they still attend about one third of the confinements. However, you do not hear so much in New York about the midwife menace as you did formerly. We still have the midwives, but they are no longer such a menace. Jacob Sobel, chief of baby welfare, New York Department of Health, says of the midwives:[2]

> The fact is that in comparison with our medical confrères, the midwives are listed on the credit side of the ledger as this relates to the percentage of deaths from puerperal sepsis, from stillbirths, deaths during the first week of life and cases of ophthalmia neonatorum.

This has not always been so. But the midwife has been regulated and closely watched. She has been taught just how far she must go and when she must call for medical assistance. Moreover, in what she is permitted to do, there are certain measures she must take, on penalty of losing her license. In other words, she is policed. The doctor is permitted to learn the right and wrong in obstetric practice, but he is policed only by his own conscience.

In America, where the practice of midwifery is in the hands of the medical profession, the doctor must bear the stigma of the bad record. It is the doctor who must institute the measures that will raise the standard of this branch of practice.

PRACTICAL GAINS FROM PRENATAL CARE

It has been shown that prenatal care will diminish maternal mortality and morbidity, and will lessen the number of infant deaths in the first month of life, and the number of stillbirths.

The Committee for the Reduction of Infant Mortality of the New York Milk Commission, in about 3,000 cases which were closely supervised during pregnancy, report a 69 per cent. decrease in maternal mortality, a 28 per cent. decrease in deaths of infants under 1 month, and a 22 per cent. decrease in stillbirths.[3] Davis,[4] Lobenstine,[5] Emmons,[6] and many others show favorable results.

The women are willing to be supervised. At the John E. Berwind Free Maternity Clinic, we stamp on each applicant's card the dates on which she is to return for the prenatal clinic. If she does not come, we send a nurse for her. But most of the patients are responsive and there is already an attendance of from 150 to 200 a month at the prenatal clinic. Throughout the country wherever investigation of this subject has been undertaken, it has been found that the pregnant women eagerly welcome prenatal care. If this care of pregnancy will improve conditions, and the patients, when enlightened, are anxious to have this care, it is our duty to provide it.

STANDARDS OF PRENATAL CARE

We must first arrive at a standard of what we consider satisfactory care. Dr. J. Whitridge Williams has prepared for the Children's Bureau of the Department of Labor, the following fair standard of medical prenatal care:[7]

1. A general physical examination including an examination of heart, lungs, abdomen.
2. Measurement of the pelvis in a first pregnancy to determine whether there is any deformity which is likely to interfere with birth.
3. Continued supervision by the physician at least through the last five months of pregnancy.
4. Monthly examinations of the urine, at least during the last five months.

The Maternity Service Association of New York, comprising practically all the Maternity Hospitals of Manhattan, has accepted as the minimum of prenatal care substantially the same standard, specifying also a blood pressure estimation at each visit and a Wassermann test in every suspicious case.

But more than 70 per cent. of the women of New York are cared for by private physicians or midwives and are not included in the benefits of this newly created standard.

RURAL AND URBAN CARE OF PREGNANCY

The Children's Bureau of the Department of Labor has made a study of obstetrics in the rural districts.[8]

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* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

[1] Meigs, Grace L.: Maternal Mortality from All Conditions Connected with Childbirth; U. S. Dept. of Labor, Children's Bureau, Bureau Publication 19, p. 17.

[2] Sobel, J.: Supervision of Expectant Mothers, New York Med. Jour., 1918, **107**, 108.

[3] Report of an Experiment in Prenatal Care, 1912-1916, New York Milk Commission, 105 East Twenty-Second Street, New York.

[4] Davis, M. M.: Relations of Prenatal and Postnatal Work, Boston Med. and Surg. Jour., 1917, **17**, 264.

[5] Lobenstine, R. W.: Development of Prenatal Care in the Borough of Manhattan, Am. Jour. Obst., 1917, **76**, 392.

[6] Emmons, A. B.: Prenatal care, Am. Jour. Obst., 1917, **76**, 401.

[7] Rural Child Welfare, Series 1, U. S. Dept. of Labor, Bureau publication 26, p. 28.

[8] Meigs, Grace L.: Rural Obstetrics, U. S. Dept. of Labor, Washington, D. C.

In one district in a prosperous community, forty-eight of the fifty mothers interviewed had been attended by a physician at their last confinement. Only seven of the fifty mothers had had any prenatal care by a physician, one visit being paid in each case; and only three had had urinalysis.

In another section, a plantation district in the South, of fifty women interviewed, twenty-six were white and twenty-four colored. Only ten white mothers were attended at their last labor by a physician. Fifteen white mothers and all twenty-four colored women were attended by colored midwives. These midwives were not licensed, trained or supervised.

In some of the larger cities, well organized movements are now under way for the better care of pregnancy. Maternity centers are being established by various agencies, through which prenatal care is provided for the women without prejudice to the physicians, midwives or hospitals who may be chosen to attend them in the coming confinement. The various health boards have joined in this work. In the borough of Manhattan, a zoning system has been arranged so that each hospital limits its service to an area in its immediate neighborhood, making it easy for the patients to come to the clinics for consultation and examination or for the prenatal nurses to visit them. In Zone 7 an intensive study is being made through the efforts of several organizations and a house to house canvass for pregnancies is made to secure complete early registration. It is evident that certain women are to be favored by better supervision.

Our purpose must be to extend the care of pregnancy to all classes of women in the cities, towns, villages and rural districts. Some progress has been made by certain townships through local visiting nurses' organizations, mothers' meetings and other useful agencies. At the most, however, we can say only that a little progress has been made here and there.

A NATIONAL PROBLEM

The problem is complex. Moreover, it is immediate. At the present time, we are painfully awake to the necessity of conservation of life. Over 15,000 women are lost in the United States each year in childbirth. Many more lose their future efficiency from the same cause through invalidism. Of all the deadly diseases only tuberculosis claims more victims among women of child-bearing age. It would seem that this is a national problem.

We find the statement made by the most earnest of the investigators of this subject that it would be impossible to extend intensive supervision of pregnancy throughout the land on account of the cost. But why reckon the cost? There is, if we consider the loss of mothers, the stillbirths and the deaths of infants under 1 month, a probable salvage of 75,000 lives annually. Every woman confined in the United States could have one week's trained nursing at a cost of $60,000,000. We are in an atmosphere of war costs and have been educated to colossal expenditures. We are no longer staggered at an outlay of $6,000,000,000 for heavy artillery.

This matter of reducing obstetric mortality is properly a war measure. Obviously I do not propose the furnishing of a nurse to every confinement patient at government expense, but have quoted the cost for comparison with other war expenses.

Sooner or later, we shall have a national board of health and a medical cabinet officer. Let the government begin with a national commission to conserve motherhood. Let this commission be empowered not only to study the question and to organize cooperation among existing agencies, but to spend money in creating a system of rural nursing. Let it create and train a body of government nurses. Let it establish, if it sees fit, prematernity hospitals for the reception of patients requiring close supervision and too remotely placed to obtain it. Let it furnish the money necessary to extend the work of organizations working along the same lines in the cities and towns. I shall not attempt in this brief paper to sketch a plan for the details of this work. But great as is its scope, it is not too large a problem for the resources of this nation, nor for the genius of the medical profession. This society should take the initiative and its members are the best qualified to plan the work and to carry it out. Undertaken as a measure to economize life in this crisis of sacrifices for self-preservation, it will survive to ease the trials of womanhood when, once free from our torments, we may feel again the purpose of making life beautiful.

THE PHYSICIAN'S GAIN

The physician as an individual will lose none of his dignity nor his benefits if women receive this additional care of pregnancy and parturition. On the contrary, the importance of obstetric care will be realized, as education on this subject is spread. He will be called on to give more of his time and he will be paid for it. As the knowledge grows that the attendance of pregnancy and labor and the guarding of young infant life is a great and important scientific function, the market will be created for good obstetric care and the practice of midwifery will be worth while. Doctors will no longer take cases reluctantly for reasons of policy, realizing as they take them, that if they give all the attention the subject demands, they are donating two thirds of their services and being paid for one third. Also, according to economic laws, when the demand is created for higher efficiency, and more careful service, the supply of good midwifery will be forthcoming. A national measure for the supervision of pregnancy will create the demand. This society should not delay in taking the steps to inaugurate this movement. It is inevitable that when our country comes to count its losses and searches for places at which to save, this great gap from which so many lives are leaking will not be overlooked. We should be the first to recognize and repair it.

Let the American Medical Association ask for a national commission to promote the care of childbirth as a war measure, with appropriations of money commensurate with the importance of the work according to the standard of other war measures.

Then let the United States, through the efficiency of the medical profession, take its place as leader among the nations in the care of childbirth. We are fighting to make America a safe place in which to live. Let us make it a safe place in which to be born.

ABSTRACT OF DISCUSSION

Dr. Wilmer Krusen, Philadelphia: In Philadelphia we are trying to convince the municipal authorities of the necessity of appropriating money for the Division of Child Hygiene which has the supervision of prenatal work. When, however, we listened to the broad program presented by Dr.

Hill we see that the question is not one of municipal, county or state, but really an international problem, because Dr. Hill wants to remove from the United States the stigma of being the fourteenth on the list in regard to the mortality of the mother and bring us up to the first place. The necessary information and influence to inspire our government to this action must be found in the 144,000 or more members of the medical profession, many of whom are members of this Association. No work is more important. It is just as important to conserve the life of the mother as that of the newborn child. The Children's Bureau of Philadelphia is seeking to save at least 100,000 of the 300,000 children who die before the sixth year.

Dr. J. H. Carstens, Detroit: We can accomplish this work in various ways. We now teach better obstetrics than we have in the past. We are requiring that students actually attend cases of confinement, and they are learning the details of the management of the work. In the college with which I am connected we require the student to attend twelve cases and to keep an accurate record of the details. The midwife does not seem to have a large number of infant mortalities. This, however, is only apparent, and it must be remembered that in a serious case the midwife calls in a physician. He has to sign the death certificate and gets the blame. It is a matter of education of the public. We must agitate the question until boards of health and nurses educate the people so that every woman may know that when she is pregnant (although the process is a physiologic one), it may become a very serious surgical case and that she should consult a doctor. Of course, to educate the people necessitates the help of boards of health, nurses and investigators of all kinds. The suggestion made by Dr. Hill of having the United States take hold of the matter seems eminently proper. If the United States can afford many thousands of dollars to take care of hogs it certainly can afford hundreds of thousands to take care of women and children. We should use our influence with our congressmen. If we do this we can probably get Congress to do something for the health of the pregnant women. Much could be done, as Dr. Hill has said, with a health officer a member of the cabinet. From him this work would radiate throughout the country and we should have in every district a health officer instructing the people in the matter of health.

Dr. Irving F. Stein, Chicago: In Chicago we are doing much the same work as that described by Dr. Hill. At the Michael Reese Hospital we have a prenatal clinic in which we have seen as many as seventy-eight women in one morning. The clinic meets twice a week. The blood pressure and urinalysis is taken at every visit. The first visit comprises a complete physical examination, including observations of the thyroid, the teeth, the breasts, the heart, the limbs for varices, etc. We try to educate the women in the care of their teeth and in the wearing of abdominal supports. If they wear corsets, we show them how to wear them properly. The incidence of eclampsia has been markedly reduced since the inauguration of the clinic. The pathologic cases are recognized early, are sent into the maternity for observation and consultation, and cared for before they become "neglected cases."

Dr. Ira L. Hill, New York: In my reference to the midwives I brought the matter up not to praise them but to show how much their work had progressed since they were under supervision. Regarding the investigations being made in Washington by the Department of Labor through the Children's Bureau, it is interesting to know that the greatest inspiration for any one who has had occasion to do any work in the study of prenatal statistics comes from that bureau, and that the two hundred and some odd thousand dollars which they have had for this work represents a tax of a third of a cent a year for all the inhabitants. Our government, therefore, could probably afford to spend considerably more and still not be working any injustice to the people.

Experimentation.—It is too often overlooked that for century after century Nature has been pitilessly performing her crude and cruel experiments and killing millions of human beings every year.—W. W. Keen.

A NEW PRINCIPLE IN THE SURGICAL TREATMENT OF BRAIN TUMORS *

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MINNEAPOLIS

Craniotomy for brain tumor, with or without focal symptoms, not infrequently fails to disclose the neoplasm. The evidence of increased intracranial pressure will be manifest by various degrees of brain bulging, by a flattening out of the convolutions, by obliteration of the sulci and by diminished or absent brain pulsation. Inspection, palpation, and exploration by incision or aspirating needle all fail to locate or reveal the cause. The tumor may be so deep within the brain substances or at such a stage of development as to be inaccessible. The lesion may be an infiltrating glioma, which cannot be macroscopically differentiated from the normal brain, or the craniotomy may not have been formed at the proper site. The wound is closed, temporary benefit is conferred by the decompression, and in time the patient dies.

Definite localizing information may develop after decompression in cases in which focal symptoms have been absent. In these cases, patients have been not infrequently reoperated on and the brain tumors successfully enucleated. The cases with focal symptoms before operation, and those without, which do not develop localizing data after negative exploration, are considered hopeless and the patients are permitted to die. The necropsy shows the tumor, or no further investigation is made. My discussion is limited to this latter type, the "hopeless" case, which deserves further consideration and should not be given up, for the tumor may and can be removed at times, as illustrated in the following case from the University Hospital.

REPORT OF CASE

Case 11487.—E. L. B., a man, aged 29 years, was admitted to the neurologic service of Dr. A. S. Hamilton, July 8, 1917, on the application diagnosis of cerebral syphilis, complaining of excruciating headache, impaired vision, spastic paralysis of the left arm and leg, and general weakness. He had had several attacks of unconsciousness lasting from one to two hours. There was slight incontinence of the bowel and the bladder. The administration of potassium iodid and mercury had been followed by improvement of symptoms. The blood and spinal fluid Wassermann reactions were negative. Bilateral papilledema were present, more pronounced in the right eye ground. He had several typical jacksonian seizures while in the neurologic service, the attacks beginning in the left foot and extending up the body, involving the leg, the arm and the face. The diagnosis of cerebral neoplasm in the right rolandic area was made, and the case was transferred to the surgical service.

July 24, 1917, a large osteoplastic flap opening was made over the right motor area of the brain. When the dura was opened the brain began to bulge. The intracranial pressure was extreme, the cortical vessels were engorged, and the surface of the brain became smooth and flat, the sulci and convolutions being flattened out and obliterated. Inspection, palpation and exploration with Cushing's aspiration needle failed to disclose the neoplasm. Aspiration of the lateral ventricle was performed. The cerebral pressure was so great that the bone trap door had to be removed to effect a closure. The case was considered as being a deep-seated lesion or an infiltrating and irremovable glioma. In other words, the case was in the "hopeless class" described before.

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* Read before the Section on Surgery, General and Abdominal, at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

The patient was definitely improved by the decompression and asserted that his unbearable headache had gone the same day of the operation. The acuity of vision improved, as did the choked disks. The wound healed per primum. Bulging of the brain under the scalp was present.

There gradually developed an accumulation of cerebrospinal fluid and a cystoid degeneration of the scar forming a cystic mass the size of a fist. This mass transmitted light and sunshine like a hydrocele, was soft, fluctuating and painless. Aspiration of the fluid was considered. Four months had now elapsed since the exploratory operation.

In studying the case I began to develop the idea that even though it had been impossible to locate and to remove the tumor at the previous operation, change and growth might have taken place in the interim, such as to make the neoplasm now accessible. A deeply seated growth might have come to the surface, or nearer to the surface, and now be removable.

Nov. 16, 1917, the patient was reoperated on. An incision was made through the old scar, the fluid was evacuated and the flap elevated. When the brain was uncovered, a thin, blue-walled cyst of the size of a goose egg was disclosed. Under the most gentle manipulation the cyst ruptured. On further examination the cyst was found to be embedded in a definite tumor mass and the lesion was evidently one of cystic development in a glioma or sarcoma, the latter neoplasms being prone to cystic degeneration. The overlying cortex was incised to facilitate removal. During this incision the anesthetist remarked that the left side of the face twitched. There was a definite line of demarcation between the tumor and the surrounding brain. By the most careful manipulation with the index finger, working to a depth of its length, and with the assistance of a teaspoon, the tumor, the size of an orange, was freed and delivered. The remaining cavity was gently packed with a hot cotton wad to control oozing, and several cerebral vessels were ligated. On removal of the hemostatic pack the brain gradually filled in the cavity and at the same time of closure the cavity had become practically obliterated. The patient made an uneventful recovery.

On the second day the movements of the arm were definitely improved over the preoperative condition. The mentality improved and in several weeks the patient was up and walking with perfect control of his sphincters.

IMPORTANCE OF THE CASE

A deep-seated tumor had evidently developed, and by the assistance of the cystic degeneration had come to the surface during the interval between the two operations. The decompression may have had a favorable influence in causing the growth to point and to be in a degree spontaneously extruded.

This case establishes a precedent, and illustrates a principle which, if followed, will in some cases prolong and in others save lives from the class which have been given a chance and then considered "hopeless." It turns defeat into victory. The practice in the foregoing hopeless cases should be reoperation at a favorable time, which will vary in different cases. The patients should not be given up. Without reoperation, the patient has been given only half a chance.

The medical profession as a whole is too pessimistic in its attitude toward neurologic surgery. Practically every field of successful modern surgery has had to pass through its trying and discouraging period of unsatisfactory results. This has been particularly true of the brain. Neurologic surgery is emerging from its dark age and is becoming a comparatively safe practice in the hands of the specially trained.

When we consider that the inevitable fate of the brain tumor patient is death, which becomes a kind relief from indescribable physical and mental suffering including blindness, the single successful removal of such a growth with complete restoration to the normal is a reward and satisfaction that cannot be measured.

I have performed thirty-six craniotomies with two operative mortalities. The first was a tumor of the cerebellum, the patient being somnolent and so far moribund that he died twenty-four hours after an uncomplicated suboccipital decompression. The second died from a large, deeply seated, irremovable cerebral tumor. Bilateral decompression was performed but was insufficient to relieve the medullary compression. There were two cases of postoperative pneumonia, which would ordinarily be considered "post ether" and attributed incorrectly to the anesthetic, had not the one followed a local anesthesia decompression.

ADVANTAGES OF DECOMPRESSION

The following views and principles of practice are based on the work of a number of neurologic surgeons and on the writer's personal experience. Every patient with a brain tumor is entitled to a chance and at least to a decompression. Any degree of papilledema calls for an immediate decompression, the operation being imperative and emergent. Organization obtains very early and when optic atrophy has once begun, it may be impossible even to halt its progress. Decompression after atrophy is "locking the barn after the horse is gone." With choked disks present, decompression may be just as imperative to save sight with a positive Wassermann reaction as with a negative. The decompression should be large enough actually to relieve the intracranial pressure, otherwise its performance is worse than useless. It should measure 5 by 7 cm. at least. I perform the Cushing subtemporal muscle-splitting operation for cerebral growths and suboccipital decompression for tumors below the tentorium. The subtemporal operation may be performed under local anesthesia when indicated. The dura is always opened, preferably by flap formation, a marginal cuff being left to cover the decompression circumference.

Decompression alone brings great relief for the insufferable headache, saves the vision and at times even in case of irremovable growths, restores the patient for a long period of usefulness. It is nearly unbelievable, after decompression or large osteoplastic flap operation, to have patients say, immediately on coming out from under the anesthetic, or on the day following, that their excruciating headache is gone and that they are comfortable.

A preliminary subtemporal decompression is performed in nearly all cerebral growths on the side opposite the suspected lesion. This makes the ultimate decompression in irremovable growths bilateral and symmetrical. The onesided bulging at times causes undue tension on the brain stem and interference with brain function due to the distortion. The relief afforded from intracranial pressure makes the second operation for removal safe and less hemorrhagic, and permits a more frequent return of the osteoplastic trap door. Aspiration of the ventricles frequently relieves the pressure and is a routine procedure in extreme pressure.

The problem is that of dealing with a brain under such pressure that the vital centers in the medulla are on the verge of paralysis with the death of the patient as a consequence. Any additional compression on the already overcrowded medullary centers as caused by the passage of the Gigli saw between the trephine openings may be just sufficient to be the "last straw" and cause death. The preliminary decompression guards against this occurrence.

From a week to ten days after the preliminary decompression, an osteoplastic trap-door opening is made over the diagnosticated site of the tumor. A large, generous opening is of the greatest importance, so that, no matter what condition may be found, it may be adequately dealt with. Lesions have been missed by being just outside a small exposed area of the brain. Patients do not die from having large osteoplastic flaps, properly formed, but they do from small ones. The intracranial pressure previously described is relieved by a large exposure. On the introduction of the finger and instruments into the brain substance for the removal of the tumor, room is provided for the expansion and bulging of the brain and the overcrowded vital, medullary centers are again saved from paralysis. In other words, fatal medullary compression is avoided. This, in my opinion, is one of the most important factors in the successful removal of brain tumors, yet it is not adequately appreciated.

During the anesthetization of the patient in brain tumor operations, cessation of respiration is of rather common occurrence, being due to the increased pressure on the already crowded medullary respiratory centers by the congestion of the brain caused by the ether. Clinical observation and animal experimentation have established the fact that respiration stops under cerebral compression long before cessation of heartbeat, and that the cardiac function can be kept up for long periods by artificial respiration.

MITIGATION OF SHOCK

Another factor responsible for death in brain operations is shock. Shock in general surgery is in great measure synonymous with hemorrhage. The excessive loss of blood indirectly produces shock. Hemorrhage is under the control of the operator and the greatest attention to hemostasis is essential to success. Horsley's bone wax and the wooden peg are employed for osseous hemorrhage and Cushing's cotton compresses and the ligature for cerebral.

In my experience, the Haidenhein hemostatic suture has proved more satisfactory than the Cushing tourniquet or Makka's clips for the control of bleeding from the scalp.

Injudicious handling of the brain and the infliction of compression and concussion directly produce shock. The greatest care and gentleness is to be exercised. Rapidity of operating is to be avoided. I believe that direct shock of the latter type is as much subject to the law of dosage and concentration as is strychnin and like toxic drugs. A weak solution administered over a period of time will be tolerated, while a concentrated dose will kill. Too speedy operating in neurologic surgery is equivalent to the inflicting of a concentrated dose of shock. This is in direct contradiction to the regular statement of textbooks which all laud rapid removal of the tumor. This I believe to be absolutely incorrect.

As illustrative of the technic of diminishing shock, in removing a glioma the size of a goose egg from the upper right motor region in a patient at the Abbott Hospital, after incising the cortex, I consumed about ten minutes or more in practically watching and gently assisting the spontaneous extrusion of the neoplasm. The case resembled an unassisted obstetric delivery. Forceps might have been applied, but were not. Here likewise the tumor was spontaneously delivered by the intracerebral pressure.

The osteoplastic trap door is cut with a broad bevel so that a solid replacement may be effected and firm sutures and snug bandaging be free from exerting pressure on the underlying brain. In irremovable brain tumors, it is desirable to rongeur away a large portion of the base of the hinge area of the bone flap. This provides for generous decompression, and by the return of the beveled margin, the undisturbed muscles over the decompressed area control herniation of the brain.

I believe that technic should be simple and that the trephine, Gigli saw, and bone-biting forceps, which always work, inflict less insult and are better and safer than electrically driven circular saws, drills and burs, which are supposed to lock when through the skull, and which in reality do not always do so. As a hand-sewed shoe is superior to a machine-made one, so is a hand performed operation superior to one performed by machine.

CONCLUSIONS

Brain tumor cases following negative craniotomy are not necessarily hopeless. A deep-seated, inaccessible lesion may develop in time, come to or near the surface, and so become removable. The decompression may have a favorable influence in causing the growth to point, and to be in a degree spontaneously extruded. Such a case given a single exploration has had only half a chance. Reoperation may turn defeat into victory.

Shock is the principal cause of operative deaths in neurologic surgery. Direct shock is subject to the laws of concentration and dosage. Rapid operating is equivalent to the infliction of a concentrated dose of shock and is to be avoided.

Indirect shock is synonymous with hemorrhage and is within the control of the operator.

Large decompressions and operative field exposures relieve and avoid medullary compression and are essential to success.

In the hands of the specially trained and experienced the operative mortality in neurologic surgery compares favorably with that in other branches of surgery. Without surgical intervention, the inevitable fate of the patient afflicted with a brain tumor is death. Surgery alone can save sight, alleviate indescribable physical and mental suffering, prolong life and at times establish a cure.

ABSTRACT OF DISCUSSION

DR. L. L. MCARTHUR, Chicago: This has been a recognized procedure for many years. Ten years ago I saw Victor Horsley remove for the second time at the third operation, a tumor of the brain which had recurred in loco, by repeating the elevation of the flap and by simple enucleation with the finger. At the first operation the tumor was not localizable, but it presented at the second operation. Localization of brain tumors is the great difficulty. He demonstrated how easy it was to be mistaken as to the location of brain tumors on the basis of symptoms. By putting a needle into the dentate nucleus of the cerebellum of a monkey he could get a lateral deviation of both eyes to the right, which symptom has been taken to indicate a cerebellar tumor. He put the same needle an inch higher up in the posterior occipital lobe and demonstrated that the same phenomenon obtained. He moved it forward to the motor area, and there again over a third place, widely removed, he produced a typical deviation of the eyes to the right so that the difficulty of localization is still a bugbear. The statement the author makes that the localization sometimes becomes evident after a decompression is an important one. Its importance is emphasized more promptly by the more simple procedure of making a callosal leak in the roof of the lateral ventricle on the side on which the neurologists believe the tumor to be. By doing so the roof of this ventricle leaks. It leaks outward instead of inward, and relief of the tension and decompression is obtained with the least possible mutilation. Then the focal symptoms may develop which will enable the surgeons to make the operative procedure, which is recommended by the author. The patient should have, then, the opportunity for the tumor to be crowded by the intracranial pressure toward the lines of least resistance, and should again be explored when the time has sufficiently elapsed to enable him to do so. Not infrequently it is possible in these frightfully deformed cases which follow these lateral osteoplastic flaps to remove a tumor which had deformed the patient until he is an object of repugnance, by making just such an exploration. The procedure and the recommendations of the author are to be recommended.

Dr. Arthur C. Strachauer, Minneapolis: It is the regular practice, or so frequently so, after a negative exploration, to permit these patients to die. Last winter I saw a case in which a negative subtemporal decompression had been performed. The patient died with a large cyst, which undoubtedly would have been amenable to treatment. There is nothing new about reoperating in cases where nothing was found, then have localizing symptoms develop, operate and remove the tumor. That has been a recognized practice for many years. It is common to operate these cases a second, third and even a fourth time. But it is the cases in which nothing has been found by the evidence of intracerebral pressure, that I particularly wanted to call attention to, and in which following decompression no further symptoms of localizing value developed. These patients should not be permitted to die, because there is a possibility of removing a neoplasm.

UTERINE INERTIA

SUMMARY OF A SERIES OF CASES *

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The classification and analysis of cases of uterine inertia are somewhat difficult because the term uterine inertia is indicative of a more or less intangible condition. Inertia of a laboring uterus cannot be established on a time basis, since there are a great many factors which make it a relative rather than an absolute entity. For instance, a primipara delivering herself of an average sized infant, and a multipara giving birth to a small baby after her uterine muscle tone has been impaired by a number of pregnancies closely following each other, might both consume the same length of time in accomplishing a different amount of work. This normal period of time for the first woman to be in labor would be abnormal for the second woman, and it could be said of the latter that she had inertia because her pains were of poor quality in regard to length and strength.

It is not known exactly why a woman falls into labor at the end of about 280 days of pregnancy. It might just as well have been normal, so far as the welfare of the fetus is concerned, for a pregnancy to consume eleven or twelve lunar months instead of ten. As it is, we can only say that when the fetus is mature, namely, at the end of ten lunar months, labor usually begins. If the stimulus to its induction is normal and the uterine muscle tone is good, labor will go on actively and progressively. On the other hand, some cases in which labor has been artificially induced by means of bags and bougies, as well as many in which labor is instituted by premature rupture of the membranes, exhibit uterine inertia of varying degrees.

PRIMARY AND SECONDARY INERTIA

The propriety of classifying uterine inertia as primary or secondary is extremely doubtful. In fact, true uterine inertia is practically always primary, since it is due to some inherent fault in uterine muscle tone, or at least to a lack of normal stimulus to its contractile power. In making the distinction between so-called primary and secondary inertia, it should be pointed out that the term inertia is defined as "an incapability of matter to change its state whether that be one of rest or motion," or a "sluggishness," or "an indisposition to exertion." This may be secondary to some constitutional debility of the patient such as pulmonary tuberculosis, or to an early rupture of the membranes, or over distention of the uterus from either hydramnios, twins, or frequent pregnancies, and in this respect the term secondary might be permissible. That is not, however, the significance given it by common usage. Inertia, arising early in labor from causes like these, is commonly called primary, while the term secondary inertia has come to convey the idea of a sluggishness arising later in the course of a labor, in which the pains had been normal up to that point. We are told, for instance, that neglected labor in contracted pelvis or with malpositions develops into secondary inertia, whereas I maintain that this is not uterine inertia, but rather uterine exhaustion.

It will be said that this is splitting hairs, and that, if the uterine contractions are ineffective, because the uterus is inert or exhausted, as the case may be, the conditions which obtain are identical and the general treatment is similar in both cases. This is not quite correct, however, because the distinction between inertia and exhaustion has a definite bearing on both the treatment and the prognosis in the two instances.

DISTINCTION BETWEEN INERTIA AND EXHAUSTION

The origin of the two conditions is not identical, for inertia is due to an inherent fault while exhaustion follows a long continued effort against an obstacle. Prophylactic treatment is obviously different. In the true inertia there is comparatively little to be done by way of prevention, whereas one should anticipate or do away with such obstacles to labor as contracted pelvis or occiput posterior and face presentations, to mention a few examples. In this series I have purposely avoided discussing cases of uterine exhaustion since this is a question for treatment directed at the underlying cause of the exhaustion.

True inertia is first noticed in the first stage of labor. With unruptured membranes a prolongation of the first stage is not often serious and usually the patient may be carried on indefinitely by such means as narcotics, or the mild stimulation of hot enemas, strychnin, quinin, etc., according to the needs of the case.

Individuals who are below par physically, whether from wrong living or some debilitating illness or some actual physical defect, are liable to be nervous and intolerant when brought face to face with any stress or strain, and the same condition which is a cause of this may readily be a factor in the occurrence of uterine inertia. Such a person stands the nagging and delay of a sluggish uterus very badly, and will often have exceed-

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* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

ingly poor contractions of the uterus, but will make a great demonstration, demanding that something be done at once to relieve her, regardless of the consequences. She will be utterly unreasonable and hysterical, so that her family soon joins in her importuning. This very thing makes inertia a serious complication unless the attending physician is absolutely sure of his ground, and after taking matters into his own hands in a decisive fashion, refuses to be led into any such procedure as rupturing the membranes and applying forceps through an incompletely dilated cervix in an ill-advised attempt to clear the atmosphere.

The unfavorable effects of inertia which may supervene in the first stage, even though the membranes are unruptured, are protraction of this stage of labor with exhaustion of the patient from prolonged though not necessarily excessive pain, loss of sleep with its tendency toward lowering the resistance against puerperal psychosis, and possibly even fetal distress.

In case the membranes are ruptured, however, a condition exists which may readily become most serious. So-called dry labors are known even to the laity as difficult and likely to be troublesome.

In my series of seventy-six cases, twenty-one, or 26 per cent., seemed to be due to the fact that the membranes had ruptured before the labor pains began, thus inducing the labor before the muscle of the uterus was especially irritable and prepared to contract vigorously. It is true that such labors may be protracted by the lack of the hydrostatic action on the cervix of an intact amniotic sack, but these cases have been classified under the heading of inertia, not on a time basis, but rather by the character of the pains themselves. In addition to this, it will be remembered that many patients with early rupture of the membranes have strong labor pains and fairly rapid deliveries, and again that inertia often occurs with unruptured membranes, so that I still contend that inertia is a distinct condition in itself.

There is great likelihood that interference will become imperative when the membranes have been ruptured for some time, on account of elevation of the temperature or pulse rate of the mother, or such signs of fetal distress as a rapid, or irregular, or very slow fetal heartbeat, with or without the passage of meconium, as the case may be. This necessity for active interference is to be feared because it involves the whole question of cervical incision and laceration, damaging pressure from forceps, postpartum hemorrhage and the liability to infection from the extensive manipulations necessary at a time when there is lowered resistance.

If a patient can be carried on into the second stage of labor, whether the membranes be ruptured or not, untoward symptoms may be met with comparative ease, but the protraction of labor may have been such a temptation to make frequent vaginal examinations that the patient may have been dangerously exposed to this source of infection, though everything else was favorable. Rectal instead of vaginal examination of the patient is especially to be recommended in cases of inertia.

Early forceps delivery may be advisable even though serious symptoms have not appeared, since it is proper to assume that an inertia of the first stage predicates a similar condition in the second stage. In the meantime, the patient may have become so tired from prolongation of the first stage that she will not be able to bring her abdominal muscles into play for the expulsive effort required in this stage.

An analysis of the cases with which I have had to deal shows several interesting features. Twenty-one, or 27.6 per cent., of my cases of inertia followed rupture of the membranes before labor began, while in three cases, the membranes ruptured within a short time after the beginning of the pains. Inertia occurred in three patients whom I observed in their first delivery and again in their second. The oldest primiparas were 39 years of age and the youngest 19 years, while the average age in primiparas was 27.9 years. The oldest multipara was 42, the youngest 20, and the average age in this class was 31 years. There was one primiparous woman under 20; there were thirty-one between 20 and 30, and sixteen past 30 years of age; there were seven multiparas between 20 and 30, and eight past 30, one being 42 years old. A total of fifty-eight were primiparous and seventeen were multiparous while the parity of one is not recorded. Of the multiparas, nine were in their second labor, one in the third, two in the fourth, two in the sixth, one in the seventh, one in the eighth, and one in the eleventh.

The era of the morphin-scopolamin or "twilight sleep," was rich in cases of inertia, although I can give no exact figures on this, the reason being that in some of the cases, the administration of morphin and scopolamin for the purpose of obtaining the condition of "twilight sleep" apparently resulted in inertia, while in many cases these drugs were given for their narcotic effect when inertia existed and sleep was necessary. My records are therefore incomplete in this respect.

INTERFERENCE IN THE FIRST AND SECOND STAGES

Twelve cases required interference in the first stage of labor, while forty-one cases went into the second stage before it became necessary to end the labor operatively, and twenty-three patients delivered themselves spontaneously, a percentage of 15.7, 53.9, and 30.2 respectively. The longest first stage of labor in a primipara was 174 hours, the shortest seven hours and the average time was 38.3 hours, while among multiparas, the longest first stage was ninety-six hours, the shortest, eight hours, and the average, 34.3 hours.

So far as the second stage is concerned, it is difficult to give comparative figures because certain of the patients had practically no second stage, interference having been undertaken in the first stage or at the outset of the second stage. The longest second stage was eight and one-half hours in a primipara and four and one-half hours in a multipara. To state that a patient was allowed to continue eight and one-half hours in the second stage may seem surprising until it is explained that there was some progress, although slow, throughout this time and no untoward symptoms developed, while at the same time the patient was being sharply watched.

Interference during the first stage consisted in Dührssen's multiple incisions of the cervix, followed by forceps delivery eight times, vaginal cesarean section once, version of Braxton Hicks later completed by extraction once, craniotomy on a dead child once, and the introduction of a bougie once.

It will be noted that abdominal cesarean section has not been found necessary, and indeed is not considered safe after the patient has been long in labor, especially if the membranes are ruptured, unless the extraperitoneal type is used. I have not used the cervical bags in any of these cases, but I am convinced, after making this review, that there are times when they might be of great value, although when interference becomes necessary it is usually urgent. Forceps were required in the second stage forty-one times, and sixteen out of all patients, or 21 per cent., developed postpartum hemorrhage of more or less serious degree.

Interference became necessary six times in the first stage and twice in the second, on account of exhaustion of the mother as evidenced by a rise in pulse to 110 or more and a temperature of 100.5 or more, and once in the first stage on account of a mitral stenosis combined with evidence of distress on the part of the infant. It was undertaken twice in the first stage and ten times in the second stage for fetal distress. In the second stage, interference was necessary seventeen times on account of undue prolongation of the stage without progress, twice because of posterior occipital positions, and twice for heart lesions of the mother.

There were no maternal deaths, but five infants were born dead or so deeply asphyxiated that they could not be resuscitated. One of these dead infants was macerated. Two babies died within the first few days of life with symptoms of intracranial hemorrhage.

CAUSES OF INERTIA IN VARIOUS CASES

The inertia was apparently due to premature or early rupture of the membranes in twenty-four cases, to artificial induction of labor in two cases, to physical debility from heart lesions in two cases, to syphilis in one and to tuberculosis in one case. A twin pregnancy was responsible once, while multiparity seemed to be the factor in a few indefinite cases. Four cases exhibited occipitoposterior positions of the head.

The morbidity of these cases has not been worked out, but seven patients showed a seriously febrile puerperium although all recovered. In one case of this group, the patient had been examined innumerable times by a midwife and another case followed several attempts at forceps delivery outside the hospital. One case followed a manual removal of the placenta for hemorrhage in the third stage.

Puerperal psychosis occurred in two patients with subsequent recovery in both instances.

In six cases there was retention of the placenta, three of these being due to an hour-glass contraction of the uterus, of which latter condition one case followed a dose of pituitary extract in second stage.

DANGER OF PITUITARY SOLUTION

Incidentally it might be said that I find very little use in my work for pituitary solution during any stage of labor. Needless to say, it has no place in the first stage, and after having three cases of hour-glass contraction of the uterus with retained placenta as a result of its administration in the second stage, I found that its safest period of use is after the expulsion of the placenta for the purpose of controlling uterine relaxation and hemorrhage. In this respect, it may be compared to ergot, which formerly enjoyed great popularity in the first and second stages of labor and finally came to be used only after the placental stage. Midwives continued to use it until they found that they had a more powerful agent in pituitary solution and now no self-respecting midwife would be without it, while ergot is almost forgotten.

CONCLUSIONS

1. The distinction between uterine inertia and uterine exhaustion is sharp, since the contractions of the uterus in the former condition are inherently ineffective while in the latter condition their force has been spent against some obstacle.

2. According to this distinction, based on etiology, it is incorrect to call the former condition primary inertia and the latter secondary inertia.

3. Differentiation between inertia and exhaustion is important from the standpoint of treatment, that of the former being more or less expectant while that of the latter should be prophylactic and directed against the obstacle to delivery.

4. True inertia begins in the first stage of labor. If the membranes are unruptured, the treatment consists in the use of mild uterine stimulants alternating with periods of rest induced by narcotics, until the second stage is reached, when active interference may be undertaken if necessary. If the membranes are ruptured, interference may become imperative on account of elevation of temperature, or pulse of the mother, or alarming changes in the fetal heart rate. This interference includes Dührssen's multiple incisions of the cervix and vaginal cesarean section, both followed by forceps delivery, or the use of cervical bags.

5. Interference in second stage is not as serious as in first stage and consists principally in delivery by forceps.

6. Frequent vaginal examinations are to be avoided and rectal examinations should be their substitute.

7. Premature rupture of the amniotic sack is a common cause of inertia in a patient otherwise well and strong, whereas constitutional defects, overdistention of the uterus by twins, hydramnios and frequent pregnancies are also important etiologic factors in producing this condition.

8. Retention of the placenta with or without hour-glass contraction of the uterus is a common result of inertia extending into third stage, and hemorrhage is likely to occur during and after the placental stage.

ABSTRACT OF DISCUSSION

Dr. Rudolph W. Holmes, Chicago: I was going to take issue with Dr. Titus for not approving of the classification of primary and secondary inertia. Secondary inertia is unquestionably due to exhaustion. Primary is clearly founded on no anatomic fact; it may be due to faulty innervation. No man, so far as I know, has ever discovered whether the uterus is normally or abnormally innervated. The great fundamental factor is that primary inertia is extremely rare and that it is due to faulty innervation, and faulty musculature. It is not the fault of the uterus but of the contributive factors present; the inertia, so-called, is the effect, not the cause, of prolonged labor. The first consideration is malposition. Every textbook and every authority tells you that each and every one of the malpositions means that labor is ushered in with abnormally weak contractions. You see it so characteristically in the breech, transverse, brow, etc. The second consideration is the contracted and flat pelvis with faulty adaptability of the head or presenting part to the brim and the labor begins with violent pain. The third type concerns the soft parts. The fibers of the lower segment prolapse and cause abnormal contractions at the onset of labor. These three conditions mean that there is an interference with the girdle of contact, that the presenting part cannot come down. The result is that the contractions continue until they settle the presenting part and the irritability is aroused. A woman may go a week with such weak contractions, when labor will be terminated suddenly. It is too often forgotten that the girdle of contact is the key to the situation. Rupture of the membrane before labor is of no consequence. The important element is the cause of the condition. The three important factors are, therefore, malposition, minor pelvic contraction, failure of adaptability of the presenting part to the brim. The weak contractions continue until irritability is aroused and labor is then rapid. Too often the obstetrician does not look at the case of inertia from the point of view of the real cause. In the case of minor pelvic contraction the woman who has weak contractions in the early part of labor should be allowed to rest and should be given bromids, if necessary. In time her uterus will be aroused into activity. Pituitary solution has no place in this stage of labor. Primary atony is of so little consequence that operative interference is rarely indicated. In secondary atony due to exhaustion or to obstruction cesarean section might have to be done.

DR. PAUL TITUS, Pittsburgh: I would simply emphasize the point that there is no distinction between primary and secondary inertia. All have seen cases starting off with good pains but developing into sluggishness due to exhaustion and not to an "inherent indisposition to exertion" or inertia The difference between these conditions is not of vital importance, except, as I wanted to bring out, that there is a difference in treatment depending on the underlying cause. If we consider malposition a cause of inertia as Dr. Holmes has suggested, why is not all inertia secondary? I do not agree with the idea that rupture of the membranes is always due to failure of engagement of the presenting part. Dr. Holmes has stated that labor was prolonged because the uterus was not ready. That is precisely the point I was driving at. In case of early rupture of the membranes the uterus is not ready, and as a result of this very fact that it was not ready when the labor was prematurely induced by rupture of the membranes, it exhibited an inertia.

TRAUMATIC LESION OF POSTERIOR ROOTS OF THE LUMBOSACRAL PLEXUS

REPORT OF CASE *

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Since the restoration of injured nerves is chiefly dependent on the seat of the lesion, I report this case in order to refresh our knowledge regarding the different locations in which these neurons are subject to injury and to record the rather unusual location of the lesion. While evulsion of the cervical roots is not uncommon, traumatic root lesions of the lumbosacral plexus, with the exception of the case reported by Chiray and Clarag,[1] have not, to my knowledge, appeared in the literature.

Recently the discussions of Dejerine and Sicard[2] concerning sciatica brought forth a crop of reports from various observers, pointing out that sciatica is a disease of the intradural or extradural portion of the lumbar and sacral roots. However, radicular inflammation and compressions must not be confused with trauma of the roots. Just as the injuries of the peripheral nerves do not form a part of the various forms of neuritis, so must traumatism of the roots be separated from all forms of radiculitis. In neuritis and radiculitis the degeneration is secondary to an inflammatory process, while in the section of a nerve or root the degeneration is primary, the spontaneous reunion of the divided nerve-ends being prevented by the mechanical obstruction of the subjacent tissue.

REPORT OF CASE

History.—K. K., a man, aged 47, came under my observation, Nov. 11, 1917, at the Central Free Dispensary of Rush Medical College. He was a Greek laborer, gave no history of a tainted heredity, was not an alcoholic, never had any serious ailment, and denied venereal infection.

For about a year and a half he had had pain of a continous character in the left hip, and for the past three months, in addition to the nagging ache, he had had exacerbations of intense neuralgic attacks over the left iliac region, accompanied by numbness in the lower extremity, which was most pronounced over its external surface.

He stated that he fell off a ladder, May 28, 1916, at a height of ten or twelve rounds, landing on the left side of the buttock and striking the cement floor with the left side of his back at the level of the sacrum, the lumbar region and the posterolateral side of the ilium. On regaining his senses he lay for a time helplessly on the floor suffering intense pain at the point of injury. He was confined to bed for three months and treated for fracture of the left hip. After he began to walk he had persistent pain in the left hip, and about five months later he was again taken to the hospital, operated on for hernia, and confined to bed for about six weeks. On his resuming the use of the limb, especially when walking or straining, the dull, nagging pain returned, which periodically forced him to rest completely for a couple of weeks at a time. Besides the continuous, dull ache there appeared at irregular intervals paroxysms of neuralgic pain which at times woke him at night from his sleep. Sept. 6, 1917, about sixteen months after the accident, he applied at Rush Medical College for treatment.

Examination.—On walking and standing, the patient favored the left limb and was limping with the toes directed outward. In a recumbent position he could not lie flat on his back longer than about a minute without experiencing marked pain on the left side of the back of the pelvis.

The lower part of the left gluteal region was slightly flatter than the right. Measurements did not elicit any palpable difference in the size of the two limbs. The movements of the toes, ankles, knees and hip were performed fairly well, but the general power of the limb was less than in the right extremity. No reaction to degeneration could be detected in any part of the limb. The reflexes were practically normal. The Lasègue sign was present, but the pain was chiefly at the hip. Pressure over the left side of the iliac crest gave intense pain, but no tenderness over the vertebrae.

The lateral surface of the extremity was completely anesthetic. The anesthetic area was limited above by the boundary line where the sensory distribution supplied by the twelfth dorsal and first lumbar roots meet, known as the Head sacrofemoral zone. Sensation to prick, temperature, touch, compass points and pressure was present, but in a diminished degree at the middle and inner part of the limb, at the inner two thirds of the gluteal region, and on the plantar and dorsal surfaces of the great toe, on the second toe and on the inner half of the middle toe and over the corresponding parts of the foot. The only parts in which the sensations were practically normal were around the anal region, scrotum and root of the penis.

The complete examination of the patient did not show any other clinical phenomena. The laboratory findings of the blood and spinal fluid were negative.

COMMENT

A review of this case presents some diagnostic difficulty. In the class of cases in which injury is the etiologic factor, traumatic neurosis is one of the affections that must always be taken into consideration in differential diagnosis. The extensive sensory disturbance, in contrast to the meagerness of muscular atrophy and paralysis, taints this case with this psychic disorder. However, the approximation of the anesthetic area to anatomic boundary lines, the persistent adherence of the sensory disturbance to the anatomic distribution (which was found on repeated control examinations), the absence of the psychogenic behavior and the subsequent onset of the neuralgic paroxysms, which must be interpreted as an expression of nerve irritation, removes this case from the neurosis class and places it in the category of traumatic nerve lesions.

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* Read before the Chicago Medical Society, March 27, 1918.

[1] Chiray and Clarag: Rev. neurol., 1912, **20**, 296-298.

[2] Dejerine and Sicard: Rev neurol, 1912, **20**, 288-295

In traumatic, as in other nerve lesions, the chief difficulty rests not in the detection of the lesion but in the determination of its seat. In order to locate the seat of lesions of the peripheral neurons, it is most essential to be familiar with the nervous distribution of radicular origin, in contradistinction to that originating in the plexus. Therefore, I will briefly review the nervous anatomy at issue. It will be recalled that the lumbosacral plexus is formed by the anterior primary divisions of the lumbar and sacral nerves. These, like the other spinal nerves, arise from the spinal cord by two roots—a dorsal and a ventral — which extend downward within the dural sac for quite a distance, forming the cauda equina, and then penetrate the membrane. Near the point of exit from the foramina the two roots unite and pass into the outer world as a mixed nerve, which latter then divides into the anterior and posterior primary division. It is important to remember that the posterior primary division does not enter into the formation of any of the plexuses, but extends adjacent to the vertebrae and supplies the skin and muscles of the back and gives sensation to the upper two thirds of the gluteal region. On the other hand, the anterior primary division of the lumbar and sacral nerves forms the lumbar, the sacral and the pudendal plexuses, and supplies the lower portion of the gluteal region and the lower extremities with motion and sensation.

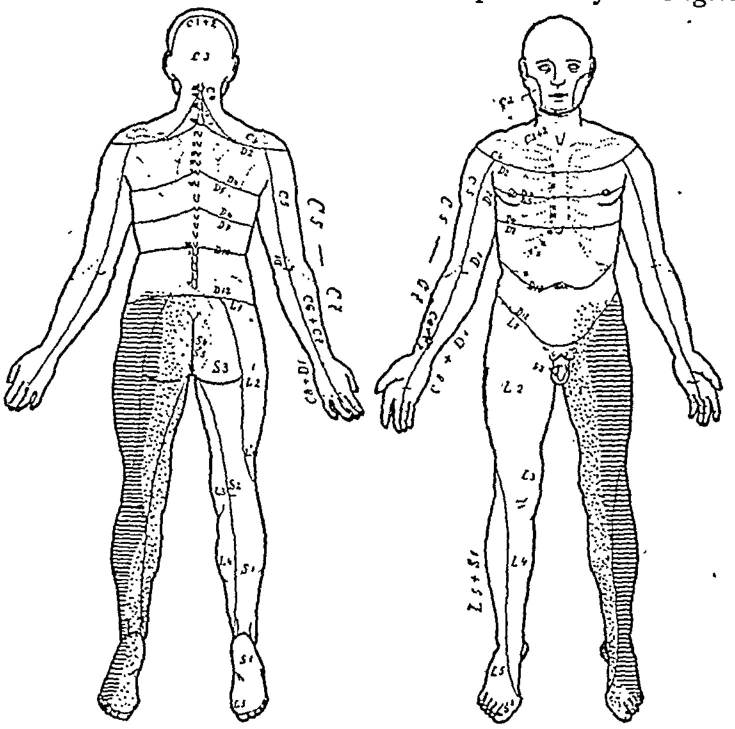

Fig. 1.—Seifert charts: horizontal lines, area of anesthesia; dots, area of hypesthesia.

Now, to utilize this anatomic architecture for localization of the lesion, it is best to divide the roots into three portions; (1) the intradural: the portion where the motor and sensory roots are still separated; (2) the extradural: the united portion of the anterior and posterior roots which extends from the distal end of the posterior ganglions to the point of divergence of these two primary branches, and (3) the truncal: the portion of the anterior division which extends from the point of separation of the ventral and dorsal division to the point of formation of the lumbosacral plexus.

It can readily be seen that this change in the anatomic construction presents different topographic outlines in the sensory and motor disturbances in each of these three portions. For instance, in lesions of the truncal portion there will be motor and sensory paralysis of muscles and skin innervated by the lumbosacral plexus, while in lesions of the extradural portion, the motor and sensory functions derived from the nerves of the posterior primary division will also be impaired or lost; and again, in tears of the intradural portion the sensation and motion may be affected independently of each other.

In the case before us the predominant feature is that of sensory disturbance. In order to avoid citation of extensive description of the well known sensory zones, I present here the Seifert charts, which show the sensory distribution, of radicular origin, and the charts by Spaltholz, which define the boundaries of sensory disturbance in peripheral nerve lesions. On the Spaltholz charts it can be seen, for instance, in section of the lateral cutaneous branch of the first lumbar nerve that the band of anesthesia is limited to the lateral surface of the thigh, or to the hip alone if the iliohypogastric happens to be the injured nerve. On Seifert's charts the lesions of the first lumbar are accompanied by a longitudinal strip of anesthesia of the lateral surface of both hip and thigh extending up to Head's sacral-femoral zone. Again, in traumatism of the truncal portion of the sacral plexus, where the small sciatic is involved, the Spaltholz chart shows that only the lower half of the buttock presents sensory disturbance. On the other hand, Seifert's charts point out that in lesions of the roots forming the sacral plexus the upper half of the gluteal region will also be anesthetic. This will suffice to show that by listing the cutaneous areas disturbed in their sensation and then determining their nerve supply, a diagnosis can be arrived at with fair accuracy in the majority of cases.

Now to return to our case, we can readily exclude an injury to the nerves in their course along the extremity itself because this patient suffered no injury in any part of the limb; furthermore, because the predominant sensory disturbance extended over the whole extremity, and again, for the reason that the dissociation of the various modes of sensation, which characterizes peripheral nerve lesions, was absent. In injuries of the peripheral sensory nerves the disturbance of the epicritic sensations extends over a larger area than that of the protopathic sensations, and the deep sensation remains intact. In our case the deep sensation was impaired, and the epicritic and protopathic sensations overlapped each other.

Taking into consideration the site of the injury, one is led to localize the lesion in the lumbosacral plexus. But on applying the anatomic construction reviewed above, it is found that the disturbance of the nervous function in our case does not conform with such diagnosis. Traumatic plexus lesions are accompanied by a degenerative type of atrophy affecting definite muscles or groups of muscles. Our case presented no atrophy nor paralysis of any particular group of muscles, nor any reaction to degeneration. The general weakness and the slight reduction in the circumference of the whole limb—a so-called atrophy en masse—was very likely due to disuse, since the patient suffered considerable pain and favored the affected left limb.

Again, the striking feature is that the lesion was practically limited to the sensory fibers, which is contrary to clinical experience in lesions of the plexus. For instance, one cannot picture an injury which would tear only the sensory and not the motor fibers of the great sciatic nerve at a point within the pelvis, where they still intermingle with the important motor fibers of the sciatic band. Again, the disturbance of sensation involves the upper half of the gluteal region, which, as the charts indicate, is supplied by the posterior primary division of the lumbar and sacral nerves.

These facts rule against a clean-cut injury of the lumbosacral plexus, and force the localization of the lesion in the intradural portion of the posterior roots. In this portion, called by Dejerine intradural murienne, in which the dorsal and ventral roots run to and from the spinal cord independently of each other, the functions of these two physiologically different roots usually become jointly affected; but it is possible that either the posterior or anterior root may be torn alone, leaving its associate partly or wholly intact.

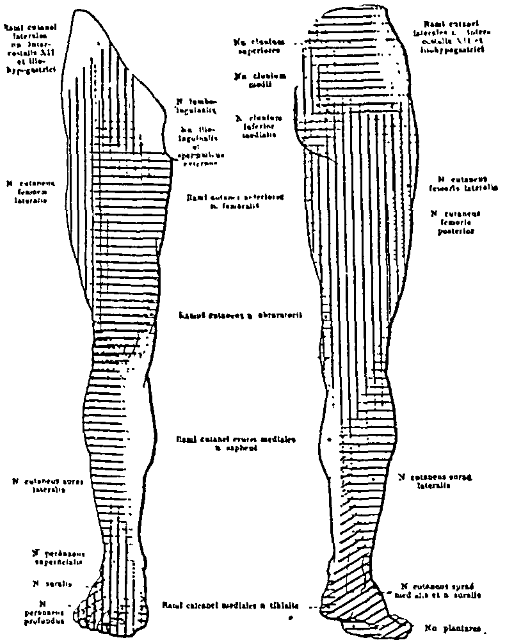
Rami cutanei laterales nn intercostalis XII et iliohypogastrici
N cutaneus femoris lateralis
N lumboinguinalis
Nn ilioinguinalis et spermaticus externus
Rami cutanei anteriores n femoralis
Ramus cutaneus n obturatoris
Rami cutanei cruris mediales n saphenl
N cutaneus surae lateralis
N peronaeus superficialis
N suralis
N peronaeus profundus
Rami calcanei mediales n tibialis
Nn clunium superiores
Nn clunium medii
N clunium inferior medialis
Rami cutanei laterales n intercostalis XII et iliohypogastrici
N cutaneus femoris lateralis
N cutaneus femoris posterior
N cutaneus surae lateralis
N cutaneus surae medialis et n suralis
Nn plantares

Fig. 2.—Spaltholz charts.

To summarize, the area of anesthesia indicated by horizontal lines on Seifert's charts is supplied by posterior roots L 1, L 2, L 3, L 5 and S 1. These were probably completely torn at their entrance into the cord. The area of hypesthesia shown by dots on the same charts is supplied by posterior roots L 4, S 2, S 3, S 4 and S 5. Very likely these have been only partly injured. In the anal region the impairment of sensation was only very slight, so that S 4 and S 5 must have been practically normal.

In traumatic nerve lesions one should not base the diagnosis with absolute certainty on physiologic findings. This was forcibly pointed out by Frazier and Skillern,[3] who reported a case diagnosed by most competent men as a traumatic brachial plexus, which, on laminectomy, proved to be an intradural evulsion of the lower three cervical roots.

In intradural root tears the prospect of repair is hopeless. In our case, however, the diagnosis being at best hypothetic, it was thought that an exploration of the plexus together with a laminectomy at the lumbosacral region would bring to view the exact nature and location of the injury and possibly reveal reparable nerve bands, which on end-to-end suture or on autofascial tubulization might bring about regeneration of some of the nerves, saving the patient endless pain and restoring the limb to at least partially normal function. Unfortunately, the patient would not consent to further operative interference.

25 East Washington Street.

Military Medicine and Surgery

CODING PHYSICAL EXAMINATIONS OF DRAFTED MEN FOR STATISTICS

METHOD USED BY THE SURGEON-GENERAL OF THE ARMY

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It is the purpose of this article to give the physicians making the examinations for the local boards an outline of how the work is accomplished and the difficulty encountered at times in interpreting the contents of the record.

As the work is of such magnitude, coming from all parts of the country and practically at some time or other, from every physician, uniformity in reporting the results of the physical examinations is impossible. Mistakes, such as occur in all statistical work of this kind, will occur; but the factor of error, compared with the total and general results attained, will be negligible.

When the work is completed, the Surgeon-General of the Army will have an invaluable collection of data, not only from the general military standpoint, but of value to every section of the country, from the largest city down to the smallest village. Realizing this, it has been the primary object of the department, of which Lieut.Col. Albert G. Love, M. C., N. A., is in charge, to attain a reliable result with the least possible error. The work, when finished, will be so complete that any local board in the country will be able to identify the men that were finally accepted or rejected for military service, and, if rejected, their names and the cause for their rejection. Statistics will be available from the tabulation of these examinations that could in no other way be compiled, and when the "reconstruction" takes place it will not only include the making over of those injured or disabled in fighting for their country, but also those who were rejected by the local or mobilization boards as physically unfit for military service.

Although the occupation of the drafted man is not coded at present, it will be done in the near future, and then the relationship of his occupation to any existing defect or disease can be determined. Statistics of occupational disease are very incomplete at present, for many men with a beginning or advanced disease resulting from their occupation pass unnoticed or away from previous medical observation.

The chief difficulty in coding the physical examinations of the drafted men has been the interpretation of vague diagnoses written on the selective draft forms by the examining physician, illegible writing, or an incomplete diagnosis or examination. In numerous cases, symptoms are given when a diagnosis should be made. Frequently the local board fails to give its name or fails to designate the state in which it is located. Since "Form 1010, P. M. G. O." has been used for the physical examinations, better and more complete reports have been received.

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[3] Frazier, C. H., and Skillern, P. G., Jr.: Supraclavicular Subcutaneous Lesions of the Brachial Plexus not Associated with Skeletal Injuries, The Journal A. M. A., Dec. 16, 1911, p. 1957.

After the reports of the draft examinations had been secured, the greatest difficulty encountered was the preparation of the data for statistics. Tabulation by hand of several millions of records would be too laborious, slow and more or less inaccurate. This difficulty was solved by the adoption of a method of mechanical tabulation, the essential feature of which consists in the transfer to a special card (Fig. 1) of the recorded data, first by written code numbers and later by means of punch holes. The punch holes are always located with a definite relation to each other and to the general dimensions of the card.

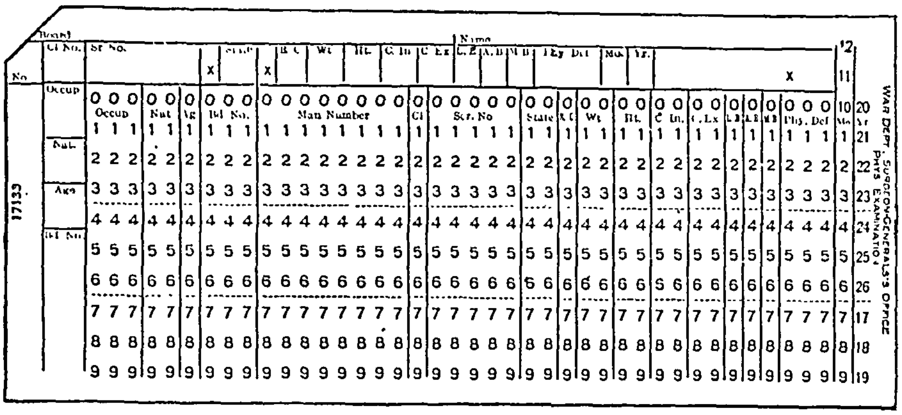

Fig. 1.—Statistical card: Code numbers corresponding to diseases and physical defects are written in the blank spaces at the top and left border. Each space has a corresponding column or group of columns of figures from 0 to 9, which are punched out according to the code numbers, so that the card may be used in the sorting and tabulating machine.

The card used for this work is of a special design and measures 7⅜ by 3¼ inches. It contains blank spaces at the top and along the left border for recording all the data that pertain to the physical examination of the drafted men. The remaining part is divided into columns containing numerals ranging in series from 0 to 9. The numerals are of sufficient number in each column to correspond with any code number that is possible to appear in its corresponding space above and along the left border of the card.

After the data are written in code on the cards, these are placed into key punch machines (Fig. 2) and the figures punched according to the data recorded. This machine is operated similarly to a typewriter, with only twelve keys, and prepares the cards for the sorting and tabulating machines by means of punch holes. This work is done by girls, especially skilled as punch operators. An average operator is able to punch from 1,800 to 2,200 cards a day. Each card is verified after being punched to discover any mistakes that have been made in the punching. These perforated cards form the basis of all future analysis of the information that the cards carry.

They are next run through electric sorting machines (Fig. 3), the sort being made by a needle which is set, according to the type of sort desired, to come in contact with the perforations of any single column of figures. Only one item can be sorted at a time. As the sorting takes place the cards are carried by a card-conveying belt and deposited into boxes, from which the cards are removed by hand. This machine sorts at the speed of 250 cards a minute with absolute accuracy.

The sorted cards are finally run through electric tabulating machines (Fig. 4) for separate counting of any item or set of items of information concerning the physical examination of the men drafted for military service. This machine counts the cards at the rate of 150 a minute and permits the totaling of from two to five independent sets of data at one time.

CODE BOOK

Work was started on the selective draft examinations, March 26, 1918, and as the same clerks are used who code the "sick and wounded" reports of the Army, little instruction was necessary for them except in a general way regarding the various diseases and malformations that were to be regarded as defects, and the relative order of their importance. A code book containing a list of the common diseases and defects of the body was compiled in the latter part of 1917 by a committee of specialists in the various branches of medicine and surgery. This book, compiled especially for coding the "sick and wounded" reports of the Army, is also used, with a few additions, for this work. There are more than 900 diseases and defects listed, each having a seperate code number. As the physical defect space on the punch card provides for only three numbers, the list of diseases and defects must necessarily be less than 1,000, or 999. Numbers between 932 and 999 were reserved for allotment to diseases or defects not found in the list. Only when an unlisted disease or defect appeared in the physical examination and was thought to be of importance and likely to appear frequently in future examinations was it given a number and added to the code book.

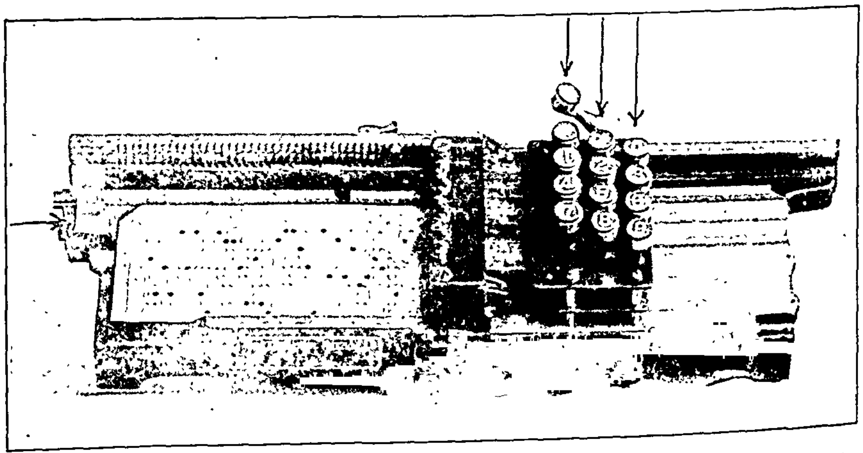

Fig. 2.—Key punch machine: The card is inserted into the carrying arm of the machine (indicated by arrow at left). The punch operator uses the keyboard (indicated by arrows at top), reading the code numbers from the left border and top of the card while she punches. As each figure is punched, the machine automatically carries the card to the left and in position for punching the succeeding figures.

DATA RECORDED

At the top and to the left of the card (Figs. 5 and 6) the name of the local board is written, and to the right the man's name. At present the name is written only when the man is rejected as physically unfit for service. Along the left border of the card is written the identification number that he received on arriving at the camp, and also there are spaces for the code number of his occupation, nativity, age and board number. Information for these spaces will be requested on the new physical examination form now being prepared by the Provost Marshal-General. On the second line to the left is a space for the class number, next the serial number followed by a space for the code number of the state in which the local board is located. The following space, or "R. C.," is for the code number which designates whether the local board is a rural district (small town) or a city. As a working rule, local boards are considered to be a city when followed by a division number such as Springfield, Mass., No. 3; Rochester, N. Y., No. 1; Meriden, Conn., No. 5; Chicago, No. 44; Pittsburgh, No. 17, etc. If not followed by a number, it is considered to be a small town or a country district, such as Fairfield, N. C.; Dyersburg, Tenn.; Lewisburg, W. Va.; Morristown, Pa.; Smithport, Pa., etc. The next four spaces are for the weight, height, chest inspiration and expiration. No code numbers are used for these, but the data are inserted in the spaces as recorded on the examination forms. As practically all of the men of the present draft age are between 100 and 200 pounds in weight, only the last two figures are used; thus, for a man weighing 175 pounds, only the 75 is recorded. If he weighs less than a hundred pounds, then "R" is placed in front of the figures; thus, a man weighing 95 pounds would be coded as R 95.

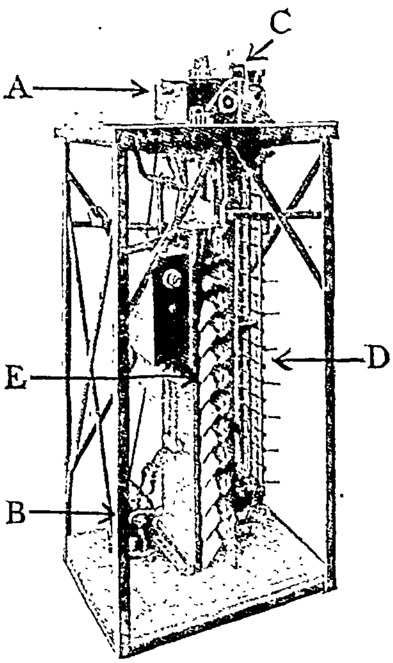

Fig. 3.—Sorting machine: Cards are set on the metal platform (*A*); the motor (*B*) causes the cards to be automatically fed into the machine by a "feeder" (*C*). As the punch holes of a single column of figures come in contact with an electric needle, the cards are sorted and carried by a card-conveying belt (*D*) into the collecting boxes (*E*). Each box is numbered to correspond with the series of figures that appear on the punch card.

Later when the card is sent to the punch room the "R" space on the card (not shown) would be punched as well as the numbers. If he weighs 200 pounds or over, then "X" is placed in front of the figures; thus 215 pounds would be coded X 15. The punching of the card would be the same as was described before except that X would be punched in place of the R.

In height, weight and chest measurements where the fraction is less than one-half inch or pound, only the whole number is coded; when the fraction is one-half or more the next whole number is used. Owing to a typographical error on the punch card, the chest inspiration and expiration spaces are reversed from the order with which they appear on the physical examination form. This arrangement, however, is disregarded, and the data are inserted as they appear on the form.

In recording physical defect, the major or most important defect or disease said to exist by the mobilization board is taken; if the man is not examined by the mobilization board, the major defect or disease that is said to exist by the advisory board is taken. If the man is examined only by the local board, then the data are taken from their examination.

In order to show on the punch card whether the man has been accepted or rejected by the local, advisory and mobilization boards, the following classification is used, each having a single code number: accepted with defect for operation; recommend acceptance with defect for operation; man not examined; physically qualified with one defect; physically qualified with two defects; physically qualified for special or limited service with one defect; physically qualified for special or limited service with two defects; physically qualified for special or limited service with three defects; physically disqualified with one defect; physically disqualified with two defects; physically disqualified with three defects.

When a man is accepted for service with no defect, "X" is used in the physical defect space. If he has a disease or defect, the code number corresponding to that disease or defect is used in place of the "X." When more than one defect is present, all are counted, but only the major or more important one is coded. The defects and diseases most commonly found in the physical examination of the men have been arranged in their order of importance from a military standpoint. Hernia, which is considered an absolute cause for rejection, or for "acceptance with defect for operation," has been placed at the top of the list. Next in order of importance have been placed syphilis, gonorrhea, valvular heart disease, tuberculosis, all degrees of flatfoot, defective vision, defective hearing, defective teeth, overweight, underweight, malunion of fracture, loss of one or more fingers, etc. The foregoing list, however, is used not as an absolute standard in all cases, but only as a general working outline.

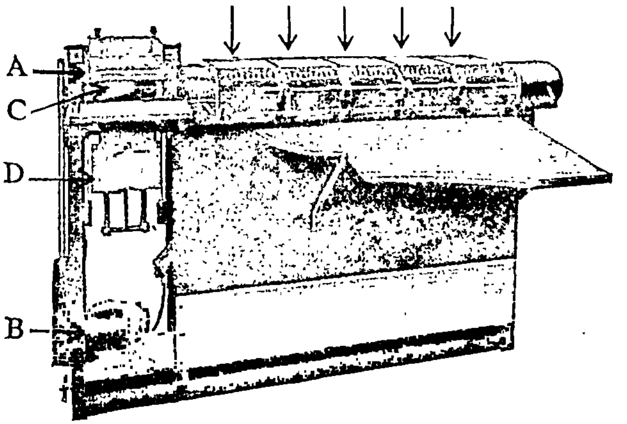

Fig. 4.—Tabulating machine: Cards are placed on the metal platform (*A*); the motor (*B*) causes the cards to be automatically fed into the machine by a "feeder." As the punch holes come in contact with numerous electric needles (*C*), the number depending on the amount of information desired, the items or set of items are counted. The cards are collected in a "stacker" (*D*) under the machine. The dials (indicated by vertical arrows) show the desired totals.

When determining the major defect, among defects stated, their severity and the effect military service would have on them are taken into consideration. In the case of a man with first degree flatfoot with no symptoms and marked defective vision, the preference would be given to the defect of vision; but if he had third degree flatfoot, with or without symptoms, and vision of 20/40 or 20/70, then the flatfoot would be considered the major defect.

In the general examination of the body, scars of the head and face are coded as a defect only when "extensive," "painful" or "with marked cicatricial contraction." A man giving a "history of a fractured skull" would not be considered as having a defect unless it was stated on the examination report to be a "depressed fracture" or one with symptoms of "convulsions," "mental deteriorations," etc.

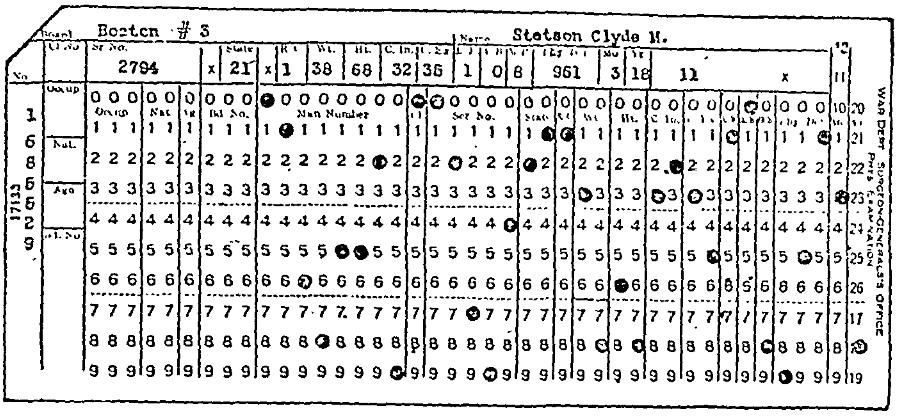

Fig. 5.—Interpretation of the statistical card: The man is from Boston, Board 3. His name is Clyde M. Stetson, his serial number 2794 and his identification number 1685529. Boston is in (21) Massachusetts and is (1) a city. His weight is 138 pounds, height 68 inches, chest inspiration 35 inches, and chest expiration 32. The local board (1) "accepted him for military service with no defect"; he was (O) "not examined" by the advisory board, while the mobilization board (8) "rejected him with two defects," the major one being defective teeth. He was examined in March, 1918. His physical examination report was coded by Clerk 11.

Goiter, except exophthalmic goiter, is considered a minor defect.

The various deformities of the chest, as "funnel," "asymmetry," "pigeon," "flat" or similar terms, are not coded as defects unless the degree of deformity is stated to be "marked," "severe" or of such a degree as to interfere with standing erect, drilling, etc.

Relaxed inguinal rings are considered a defect; but when associated with such defects as syphilis, flatfoot, tuberculosis, gonorrhea or valvular heart disease, the preference is given to the latter defects; when associated with hypertrophied tonsils, varicose veins, various deformities of the hand or foot, etc., then the preference is given to the relaxed rings.

Scars of the abdomen and extremities from operations or burns are not coded unless "extensive," "painful" or "with marked cicatricial contraction." If an abdominal scar is associated with a "weak abdominal wall," then it is considered a defect. Curvature of the spine is considered only when "marked" or "severe." Ankylosis of the joints, either fibrous or bony, is always coded as a defect. Old fractures of the extremities are not coded unless a "deformity" is present from malunion, or "ankylosis," or "loss of motion" is said to exist. A finger amputated at the distal phalanx is not considered a defect. If amputated at the second phalanx or proximally, it is coded as the loss of a whole finger. Varicose veins are considered only when "marked" or "painful" or "with symptoms."

The common deformities of the nose, as a deviated septum, nasal spurs or hypertrophied turbinates, being common defects and ones that can in all probability be corrected, if necessary, are not considered for the statistics. Hypertrophied tonsils, because they play such an important part as a source of various infections of the body, are considered defects; but when associated with other defects, as varicocele, venereal disease or flatfoot, the latter are given the preference.

In coding defects of the heart, "functional," "systolic," "accidental" or "cardiorespiratory" murmurs are not considered. When a definite disease of the heart is said to exist, as mitral stenosis or regurgitation, aortic stenosis or regurgitation, or stated as "organic murmurs," it is coded as a defect and ranks next to hernia and venereal disease in order of importance. Cardiac hypertrophy or dilatation, whether slight or marked, is always considered a defect. Tachycardia is considered only when characterized as "constant," "persistent," or by any other term that shows it to be of a permanent character and not from nervousness as a result of the physical examination.

In considering defects of the lungs, "râles," "dulness over lungs," "bronchial breathing," "rough breathing," etc., are not taken as defects. If the man is rejected or discharged from the Army for any of these physical signs, it is considered a defect. If any of the physical signs are found to fit in with any previous illness or with other parts of the examination, such as underweight, poor physical development, persistent cough, hemotysis, etc., then the symptoms for which the man was rejected or discharged are coded as near as possible as a definite disease. Asthma, tuberculosis and similar diseases are always considered major defects.

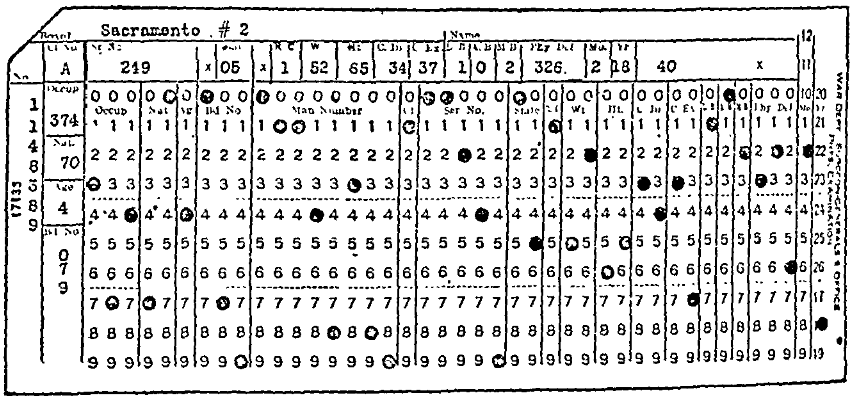

Fig. 6.—Interpretation of the statistical card containing the additional information that will be requested on the new physical examination form: The man is from Sacramento Board 2. His name is not written on the card as he was accepted for military service. He is in Class A, his serial number 249, and his identification number 1148389. His occupation is (374) bookkeeping; he was born in (70) England; his age is (4) 24, and the local board that examined him is No. 079. Sacramento is in (05) California, and is (1) a city. His weight is 152 pounds, height 65 inches, chest inspiration 37 inches and chest expiration 34. The local board (1) "accepted him for military service with no defect"; he was (0) "not examined" by the advisory board, while the mobilization board (2) "accepted him with one defect," the defect being (326) gonorrhea. He was examined in February, 1918. His physical examination report was coded by Clerk 40.

Diseases of the genito-urinary organs, as syphilis and gonorrhea, are always considered major defects and rank next to hernia in order of importance. Varicocele is not considered a defect unless it is said to be "marked," "large" or "with symptoms." Hydrocele is always coded as a defect. Atrophy of the testicle is not considered; but defects such as monorchism, cryptorchidism or hypospadias are always coded.

Hemorrhoids are considered only when "external," "large," "bleeding" or "painful." Small epithelial or skin tabs are not coded. Fistula in ano is always a defect.

All degrees of flatfoot are coded as defects. Hallux valgus is considered a defect, but overriding toes are not unless they are of such severity as to be a cause for rejection, and pronated feet only when "marked" or "severe." Weak, flaccid and spastic feet or similar conditions of the feet whose function can be restored by treatment are not considered.

The next two spaces on the card are for the month and year of the examination, no code number being used; but the number of the month and the last two figures of the year are written in their respective spaces. The last space on the card is for the code number of the clerk who transfers the information from the physical examination form to the card.

VALUE OF THE NEURO-OTOLOGIC TESTS IN THE ARMY FROM A DIAGNOSTIC STANDPOINT

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A great deal of literature has appeared concerning the Bárány tests in the examination of aviators, while very little has been said about their value in other departments of Army medical work. Perhaps the main reason for this is the newness of the subject and the requirement of a greater knowledge of neurology than is usually considered necessary in otologic practice.

However this may be, there are many borderline cases among the men already in the service to whom the tests and a correct interpretation of them are highly applicable if we maintain the same standard for ear work that we have established for the other branches of medicine.

In the Army, all cases of visual disturbance are carefully investigated by the ophthalmologist, and every case of deafness is referred to the otologist; but when it comes to disturbance of the vestibular apparatus, it does not seem to be so well known that vertigo comes purely from some interference with a special sense organ governing the manifestation of dizziness, and that a careful examination is often necessary in order to determine the source of the trouble.

Owing to the anatomic relation of the vestibular end-organ to the organ of hearing in the labyrinth, and the common nerve trunk for the two senses, as well as a close central relation, the otologist falls heir to the newly acquired methods of examination. Consequently he must be able to interpret (or help interpret) the variations. Here cooperation of the otologist and neurologist will almost invariably lead to a correct diagnosis; at least they can determine whether the trouble is functional or organic. The soldier who complains of dizziness or of dizzy spells is entitled to just as much consideration as the one who complains of poor vision or deafness.

Many theretofore unrecognized cases of vestibular disease have been observed in the cantonments by those familiar with the symptoms. Some of these men have been treated for chronic stomach disease, nervousness and various other troubles. Some are kept for weeks under observation, while others are classed as malingerers or hysteriacs. The majority of them are absolutely useless as soldiers, they cannot train well, and when most needed they will be unable to carry out their part. Yet not all men troubled with dizziness necessarily have vestibular disease. However, the significance of the symptom is so marked that one should never overlook the possibility of a lesion in the structures constituting the vestibular apparatus.

The peripheral nerve ending may be involved by any disease common to the middle and internal ear. The nerve trunk is subject to various disturbances, and, when we consider the extensive ramification of the vestibular fibers in the spinal cord, the medulla, the cerebellum and the cerebral cortex, as well as the vestibular relation to all the cranial nerve nuclei, we can appreciate the opportunities for intracranial involvement. Some one has well said, "The vestibular apparatus is the brain sentinel."

Through the various connections with the cranial nerve nuclei, reflex irritation may occur and produce dizziness, as is frequently encountered in refraction work, nasal examinations, acute indigestion, etc.; while toxemia from any source, as chronic indigestion, chemical absorption, infections and constitutional diseases, may account for other cases. Here the prognosis depends on eliminating the cause of the irritation.

I shall not attempt to discuss the tests in this article; they are comprehensive, practical and an invaluable aid to neuro-otologic diagnosis. The excellent work by the Philadelphia school along this line cannot be too highly commended. The article by Isaac H. Jones[1] should be read carefully by all who do not appreciate the importance of the vestibular manifestations in the practice of medicine.

The value of the neuro-otologic tests in making the diagnosis of multiple sclerosis of the cerebellar type is illustrated by the case of a soldier who was under observation in one of the cantonments for several weeks.

C. D. P., aged 24, stenographer, referred for examination of the vestibular apparatus, for six years prior to enlistment had been treated for stomach trouble and had had an operation for appendicitis without relief.

Auditory findings were absolutely normal.

Vestibular tests revealed voluntary nystagmus when looking to either side and past pointing 4 inches above with the left finger horizontal test (shoulder). Romberg's sign was positive. Coordination was poor.

Turning tests revealed a poor grade of nystagmus and but little or no vertigo. There was no falling. There was no past pointing with the right hand. The patient past pointed 6 inches to the right with the left hand when turned to the right or left.

Caloric tests of the right ear revealed slight nystagmus from the vertical canal after one minute; no vertigo; a shade better nystagmus from the horizontal canal. Caloric tests of the left ear revealed no nystagmus nor vertigo from vertical canal after three minutes' irrigation; slight reaction from horizontal canal. There was no falling. The patient past pointed the same as in the turning test, namely, right hand, no past pointing; left hand, 6 inches to the right.

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[1] Jones, I. H.: The Practical Uses of Recent Work on the Internal Ear, The Journal A. M. A., March 17, 1917, p. 829.

A peripheral lesion can be eliminated, as the nystagmus was fair from the horizontal canals, the left hand always past pointed to the right, and the auditory reactions were normal. The past pointing and falling reactions indicate a lesion at the crossing of the superior cerebellar peduncles and involvement of the left cerebellar cortex, while the nystagmus reveals a pons lesion involving the vertical canal fibers. All this suggests multiple foci.

On further investigation the patient gave a history of yellow fever at the age of 10, measles at 15, and typhoid at 16. At 18 he had left facial paralysis and difficulty in swallowing and breathing, with partial recovery. Later he had dizziness and stomach trouble, and was operated on for chronic appendicitis. Two years later he was able to resume his studies, but was not well. He is now unable to continue his work as a stenographer on account of dizziness and stomach trouble.

The patient was of fairly healthy appearance. There was an intention tremor of the hands, and weakness of the mimic muscles of the left side of the face. There was no plantar nor abdominal reflex. On the left shoulder and the abdomen there were semianesthetic spots. The patellar reflex was overactive; there was slight spasticity. The corneal reflex was subnormal. There was loss of taste over the left half and posterior right third of the tongue. The patient was very nervous.

All laboratory reports were negative, including roentgenoscopy after test meals.

The manifestations indicated a slowly progressive lesion of weak destructive quality, involving chiefly the region indicated by the Bárány tests. Careful consideration of a detailed history justified the diagnosis of multiple sclerosis.

CONCLUSIONS

1. A more general use of the tests is indicated when dizziness is encountered.
2. A closer cooperation of the otologist with the neurologist is necessary in this work.

TREATMENT OF FACIAL ERYSIPELAS AT CAMP CODY, N. M.

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AND

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CAMP CODY, DEMING, N. M.

Between Nov. 6, 1917, and May 15, 1918, 104 cases of erysipelas were treated at the base hospital at Camp Cody. Most of these began on the face. The disease followed drainage of the mastoid in seven cases, abscess of the scalp in three cases, demonstrable ulcer in the nose in three cases, hordeolum in one case, and burns of the face in one case. The remaining ninety cases were called "idiopathic." On certain occasions an influx of such cases was noted after a period of high winds and dust storms, such as characterize this place and favor the development of inflammations of the mucous membranes of the head generally.

Although only one patient died as the result of erysipleas, the disease was responsible for a total of 2,497 hospital days, making it a matter of some importance to determine the best method of management and establishing it as a routine.

TREATMENT

Most of the methods known to the profession have been tested, including a sensitized streptococcus vaccine prepared here from the mastoid cases by Captain Lamb, chief of the laboratory service. Until about March 1, 1918, none of the methods tried showed any marked superiority over certain others; but at this time, Lieutenant Avata began a systematic employment of the method of collodion circumscription, first described in 1892 by Niehans. The results have been striking. Before March 1, the cases treated by all other methods averaged 8.1 days of fever and 30.4 days in hospital. (The patients were discharged when redness, swelling and desquamation were all gone.) All patients treated after March 1 by collodion circumscription averaged 3.5 days of fever and 15 days in hospital, a cut of 50 per cent. in the number of days spent in hospital by the average case of erysipelas.

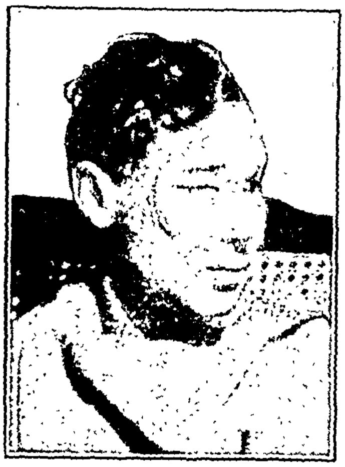

Fig. 1.—Erysipelas beginning about the right eye. The disease having extended to the bridge of the nose, the collodion line is made to include the nose and both eyes.

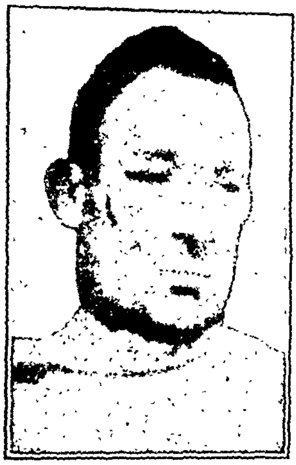

Fig. 2.—A case similar to that shown in Figure 1, front view.

The method is not a new one, but it would appear that it is not so commonly used as it might be to advantage, and that frequently it is not carried out in such a way as to give the full results of which it is capable. The following details of the method as used at Camp Cody, by Lieutenant Avata, are, therefore, recorded.

Collodion, U. S. P. (nonflexible), is painted with a cotton swab or brush to form a stripe half an inch wide and from half an inch to an inch in advance of the line of induration, in such a way that the diseased area is completely circumscribed. The collodion stripe is painted over repeatedly until, when dry, it makes a deeply constricted furrow not broken or imperfect at any point. On the following days the collodion line is inspected for breaks, cracks or inadequate constriction at any point; if found, these are repaired by further coats of collodion. When enough collodion is used to produce a continuous and sufficiently deep (from half to three quarters of an inch) linear constriction of the skin, the erysipelatous induration advances to the collodion, but not beyond it. The collodion is left in place until the temperature and swelling have wholly subsided. If there is a break in the collodion line or if the skin constriction is too shallow, the disease may pass through or under it. Presumably a successful result depends on a complete constriction of the lymphatics of the skin through which the infection travels.

Some ingenuity may be exercised in laying out the line on which the collodion is applied when dealing with erysipelas involving different parts and expanses of the face, head, neck, etc. In cases beginning about the ear it has been found feasible to clip the hair and encircle the ear; with unilateral involvements of the cheek or face which have already approached one eye but have not involved the nose, the line may be drawn up the nose between the eyes and around the lesion, leaving one eye within the circumscribed area, but saving the other, etc., as in the accompanying illustrations.

Within the circumscribed area the inflamed skin swells intensely, at first appearances more intensely than in noncircumscribed cases; but this is mainly an appearance due to the contrast between the swollen area and the line of depression caused by the collodion, as may be noted in the illustrations. Patients have not complained more of discomfort or the sensation of tightness, when so treated, than those not circumscribed. On the contrary, the control patients complained that they were not given the benefit of circumscription. The latter do not become so toxic as those in which the disease is permitted to involve wide areas of skin (Table 2).

TABLE 1.—COMPARATIVE RESULTS OF THE TREATMENT

Total cases from Nov. 6, 1917, to May 15, 1918	104
Cases treated by collodion circumscription	23
Cases treated by all other methods	81

	Collodion Cases	All Others
Average stay in hospital	15 days	30.4 days
Average febrile period	3.5 days	8.1 days
Average maximum temperature	103 F.	104.5 F.
Incidence of complications	0.0 per cent.	15.3 per cent.

The collodion treatment is supplemented by the continuous application of cold compresses wet with a saturated solution of magnesium sulphate and by general measures, such as are rational in any febrile condition.

RESULTS

Of the twenty-three erysipelas patients treated by collodion circumscription, all but one entered the hospital after Feb. 1, 1918, whereas most of the others were admitted before that date and after Nov. 6, 1917. The question could be raised, therefore, as to whether the marked improvement in results was influenced by other factors besides the treatment, as for instance, a natural decline in the virulence of the infecting organism, an increased resistance on the part of the seasoned troops, differing practices with reference to the date of release, etc. After the middle of April, to control this point, circumscription was employed only in alternate cases, while the controls were treated simply with cold compresses of saturated magnesium sulphate solution. The results are given in Table 2.

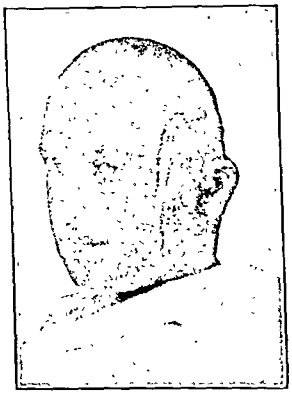

Fig. 3.—Circumaural erysipelas; intense swelling, stopping abruptly at collodion line.

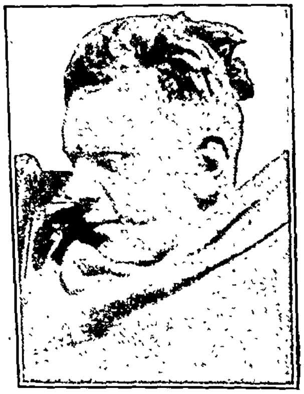

Fig. 4.—Method of sparing one eye when the disease has not yet involved the bridge of the nose.

TABLE 2.—RESULTS IN FOUR CASES TREATED WITH AND FOUR WITHOUT COLLODION CIRCUMSCRIPTION

	Case No.	In Hospital, Days.	Febrile, Days.	Highest Temperature.	Highest White Blood Count.	Complications.
Circumscription Cases.	1	12	3	102.0		None
	2	20	3	104.4		None
	3	21	5	101.4	16,000	None
	4	22	3	99.4	8,000	None
	Average	18.75	3.25	101.8	12,000	None
Controls	1	33	7	104.6	......	Abscess
	2	34	8	104.0	......	Abscess
	3	16*	11	104.0	23,000	None
	4	22	14	105.4	22,000	None
	Average	26.25	10	104.5	22,500	40%

*This patient had erysipelas six days before admission to the hospital.

CONCLUSION

The method of treating erysipelas by collodion circumscription as described above has led to a marked reduction in the time spent in hospital by such patients. It also markedly shortens the length and the height of the fever curve, lessens the toxic symptoms generally, and in facial erysipelas reduces the frequency of abscess formation almost to nothing, since abscess seldom occurs with erysipelas confined to the face. No comparable results having been obtained by any other method, the collodion circumscription method has been established as a routine.

OCULOMOTOR REACTION TO LABYRINTH STIMULATION

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The testing of thousands of young men for the aviation service will give a wonderful stimulus and interest to the question of the physiology of the semicircular canals and their reactions. In the consideration of this subject there is one method of approach which has not been used, and yet which seems to me to present a promising field for investigation. I mean a consideration in a more careful way of the actual anatomic position of the canals, and their physiologic relations to the movements of the head on the body. A comparison of these planes and directions, as well as of the motion of the head with the different conjugate movements of the eyes, is also interesting. To simplify matters, this subject should be considered mainly with the position of the body vertical and immobile.

The movements of the head and eyes and the position of the canals will be considered in three planes, horizontal, longitudinal and transverse. The last two positions, that is, the longitudinal and the transverse, are generally termed in anatomic descriptions of the skull as sagittal and frontal, but I have chosen longitudinal and transverse as being more descriptive of these positions and directions of movement. These positions can be better understood if the skull is considered in the status of the living subject standing upright, with the head erect. An exact vertical anterior posterior median section of the skull would now represent a basic longitudinal plane and any longitudinal plane would be a plane parallel to this section. The term sagittal is used by anatomists instead of the term longitudinal for this direction.

A vertical section made across the skull at right angles to the foregoing would form the basic direction for transverse planes and any plane parallel to such section would be a transverse plane. This direction is called by the anatomists frontal.

A horizontal section at right angles to both the foregoing would represent the basis for the horizontal direction and any plane parallel to this would be horizontal. This direction is also termed horizontal by the anatomists.

A consideration of the movements of the head in these three different directions will now be made. A movement of the head in a longitudinal (sagittal) plane is a nodding movement. So also is a raising or lowering of the head, or a throwing it back. This will take place mainly by a rocking of the skull on the condyles of the occipital bone resting on the atlas, that is, at the occipito-atlas articulation, and the radius of action is around a pole passing through this articulation. A movement of the head in a transverse frontal plane is a wagging of the head from side to side. This includes the occipito-atlas, the atlas-axis, and the upper cervical articulations, and the radius of action is around a pole situated lower than the center of motion of the longitudinal movement. The horizontal movements are those of turning the face from one side to the other. These movements take place by the turning of the atlas around the odontoid process of the axis. The radius of action in these movements is around a pole which is represented by an extension upward of the odontoid process of the axis. It is interesting also to note that the radius of rotation for the horizontal and the longitudinal canals is about the same—that is, about 1½ inches—also that the center of rotation of the longitudinal (superior) canals is higher than the center of rotation of the transverse (inferior) canals.

MOVEMENTS OF THE EYES

A brief consideration of the mechanics of the motion of the eyes is necessary. No movement of the eyes is participated in by any two muscles alone. In other words, there is no single action of any muscle of the eyes without others also taking part in it. The simplest conjugate movement is that in a horizontal direction with the internus on one side and the externus on the other taking the principal part. At certain parts of this excursion, however, the superior and inferior recti play a prominent part. The raising of the eyes is not purely an action of the superior recti, but there is also a decided action of the inferior obliques. In the act of looking down, the inferior recti are aided by the superior obliques. Rotary movements are not accomplished by concomitant action of the muscles in the obliques only, but aid is given by the recti. Motion of the eyes calls for a constant state of tonic contraction of all the ocular muscles. This tight rein produces the absolutely smooth and well regulated movement of the eyes. This smooth transfer of power from one direction to another is, perhaps, aided by the fact that the axis of the two orbits are not parallel and that no muscle acts alone for any one direction of movement.

The movements of the eyes then in a longitudinal (sagittal) plane are represented by a raising and lowering of the eyes, and the muscles mainly involved are the superior and inferior recti. The movements of the eyes in a transverse frontal plane are torsion of the eyes, and the muscles mainly involved are the obliques. The movements of the eyes in a horizontal plane are the turning of the eyes to right or left and the muscles mainly used are the internal and external recti.

At this point it is desirable to consider nystagmus in its relation to the conjugate movements of the eyes mentioned in the foregoing. Nystagmus due to cerebellar or internal ear origin used to be called conjugate *deviation* and is a conjugate movement of the eyes. Horizontal nystagmus is carried on by the internal and external recti, vertical nystagmus mainly by the superior and inferior recti and rotary nystagmus by the obliques.

POSITION OF THE CANALS

The position of the canals will bear careful study and the proper placing is absolutely essential if the reflexes resulting from their stimulation are to be intelligently interpreted. A study of the canals will show that while none of them lie in the exact direction of the planes of the skull, they may each be said to lie nearly in one particular plane. There is no difficulty about the horizontal canals though they are not absolutely in a horizontal plane and the head must be inclined forward from 20 to 30 degrees before they lie in a horizontal plane. The vertical canals, however, require more careful consideration and should be studied, when possible, with the temporal bone still attached to the skull and not disarticulated; however, if it is disarticulated, great care must be taken that it be held in its proper relative position to the rest of the skull. In studying a temporal bone, there is a uniform tendency to place the pars squamosa in a longitudinal plane, whereas it should be held at an angle of about 20 degrees with this plane. This change in the angle throws the posterior canal more nearly into a transverse plane. Again it is true, as Gray says, that the posterior vertical canal is parallel with the posterior surface of the temporal bone, but the portion of the posterior surface which is parallel to this canal is a facet which is several degrees more nearly in a transverse plane than the remainder of this surface. These two factors being taken into consideration, the posterior vertical canal, instead of being in a plane forming an angle of 45 degrees with a longitudinal plane, is found to be only about 25 degrees from being in a transverse plane and the anterior canal is about 25 degrees from being in a longitudinal plane. All the bones at my disposal, while limited in number, bear out these relative positions and I am sure they will be still further substantiated by the measurements of large collections.

From this study, therefore, the anterior vertical canal should be called the longitudinal (sagittal), but is called almost universally the frontal (transverse). The posterior vertical should be the transverse (frontal) but it is called almost universally the sagittal. The conception that the posterior canal on the one side is in a plane with the anterior canal on the other side (Crum Brown) is wrong and the arguments as to the action of the canals based on this premise must be wrong. The two posterior canals lie more nearly in transverse planes and the two anterior canals lie more nearly in longitudinal planes or nearly parallel. That they are not exactly in these planes is admitted. Neither are the horizontal canals in the horizontal plane, but they are sufficiently near so that they are the canals stimulated by rotation in a horizontal plane. So will the anterior canals be stimulated when the longitudinal planes are made horizontal. This cannot be done in the ordinary turning chair, as it is impossible to lay the head sufficiently over on the shoulder. The posterior canals may be placed horizontally or in the plane of rotation either by placing the head down, as in the falling test of the aviation examination, or by throwing the head well back.

Neuman,[1] in his lectures in this country in 1910, in explaining the rotation tests, describes the two horizontal canals as acting simultaneously, and when the head is flexed either forward or backward, the two superior canals are acting simultaneously. He ignored the posterior canals, taking the ground that although they may be excited by rotation with the head down on either shoulder, it is impossible to determine from which ampulla the center is stimulated, as both are occupying the same relative position. It will be noticed he holds the vertical canals to be in opposite planes to the positions claimed in this paper. Bárány's mnemonic sign also does not give the true position of the canals. Furthermore, it is extremely difficult, if not impossible, to place the hands in the true planes of the canals.

Alexander[2] states:

> The semicircular canals, the ampulla and the nerve end places are named according to their position in the cranium. Thus, there are the frontal (anterior superior) the horizontal (medio external) and the sagittal (posterior inferior) canals.

Ballenger[3] quotes Flourens as follows:

> If turned while the head is inclined 90 degrees forward or backward, the anterior vertical pair of canals functionate, causing a rotary nystagmus.

On the other hand Gruber,[4] quoting Retzus, speaks of the anterior superior or sagittal and the posterior (frontal), but later he quotes Crum Brown:

> The plane of the anterior canal of one ear is almost parallel with the plane of the posterior canal of the other ear.

From the foregoing descriptions of the movements of the head, the conjugate ocular movements including nystagmus and the positions of the semicircular canals, we are in a position to correlate the three showing how all harmonize.

HARMONY OF THE VARIOUS MOVEMENTS

The horizontal movements of the eyes are those controlled by the internal and external recti, which, unlike the other extrinsic muscles of the eye, have in this plane an action less opposed and unhampered by the contraction or tone of the remaining ocular muscles. The horizontal canal is similarly unhampered. It has its independent opening into the utricle and is shorter and wider than the other canals. By far the greater movements of turning the head and body are in a horizontal plane and provision seems to be made that both the labyrinth and the ocular motor apparatus shall be least interfered with in this plane. The horizontal movements of the head, the horizontal canals, and the internal and external recti (horizontal nystagmus) therefore bear a close relationship.

The vertical movement of the head is in a longitudinal plane. The canals lying more nearly in this plane of motion are the anterior superior, which receive more direct action when the head is thrown backward or forward (nodding).

The vertical movement of the eyes is mainly the action of the superior and inferior recti. The corresponding motion of the head is nearly in the plane of the superior vertical canals and mainly stimulates these canals in a longitudinal plane. The vertical movements of the head (nodding), the superior canal and the superior and inferior recti (vertical nystagmus) therefore bear a close relationship.

The rotary movements of the eyes and rotary nystagmus are the result of mixed action, but mainly that of the obliques. The corresponding motion of the head is the movement from shoulder to shoulder or in the transverse plane, and placed most nearly in this plane are the posterior canals. The relationship of the posterior canals therefore is with the oblique muscles (rotary nystagmus) and with the movements of the head in a transverse plane.

The eye reactions to the turning tests bear out this conception of the planes of the canals and their relations to the movements of the ocular muscles. The chair rotates in a horizontal plane and the different planes of the head in order to receive their maximum stimulation, must first be placed in the horizontal plane. Stimulation of the horizontal canals by horizontal rotation produces a horizontal nystagmus, which is almost an action of the interni and externi.

If it were possible to produce rotation with the head on one side at right angles to the vertical position, we should produce a rotation of the longitudinal plane, which in this position of the head becomes horizontal. The canals in this plane are the superior and are the ones most affected by the rotation of the chair. The stimulation from rotation with the head in this position produces a vertical nystagmus or an action of the superior and inferior recti, which are the muscles acting in the same plane as the superior canals. It is practically impossible to place the head on one side for a rotation test unless some contrivance such as a turning table is used, and as the position is not exact, the reaction is mixed.

Rotation with the head down produces a rotation of the transverse plane, as in this position the transverse planes of the head are made horizontal and the planes are affected by the rotation of the chair. The stimulation from rotation with the head in this position is to the inferior canals mainly and the reaction produced is rotary nystagmus, which is an action mainly of the superior and inferior obliques.

The fact that three different planes of the canals do not exactly coincide with the horizontal, longitudinal, and transverse planes of the head will mean generally that in most motions of the head there is a combined stimulation. This corresponds with the combined action of the different muscles in the movements in the eyes and the two seeming irregularities probably make for smooth and even mobility.

CONCLUSION

There is a direct relationship between stimulation of the following canals and the action of the following muscles: the superior canals and the superior and inferior recti; the horizontal canals and the internal and external recti, and the inferior canals and the obliques. Also, the horizontal canals are stimulated by the movements of the head nearly in a horizontal plane, the superior in a longitudinal plane, and the inferior in a transverse plane.

The erroneous conception of the positions of these canals should be corrected and they should be called horizontal, longitudinal, and transverse respectively.

Base Hospital No. 69.

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[1] Phillips: Diseases of the Nose and Throat, Ed. 4, p. 312.
[2] Alexander: Diseases of the Ear. Pfaundler and Schlossman: The Diseases of Children, 6.
[3] Ballenger: Diseases of the Ear, Nose and Throat, Ed. 3, p. 630.
[4] Gruber: Diseases of the Ear, p. 189.

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SATURDAY, SEPTEMBER 14, 1918

INTESTINAL AMEBAS

The bacteria no longer form the sole topic of interest to the student of diseases of microbiotic origin. The amebas have lately claimed their share of attention. The genus *Endameba,* which includes parasitic species of amebas, was established nearly forty years ago by Joseph Leidy,[1] who, in 1879, took for its type species *Endameba blattae,* a parasitic ameba of the cockroach. The discovery of the existence of a true amebic dysentery in man has given the impetus latterly to extensive researches in this field. It early became evident that not all amebas harbored in the alimentary tract are pathogenic. The differential diagnosis has been greatly complicated by the uncertainties of classifying these organisms, owing in part to the lack of knowledge of their complete life cycle and to the difficulties inherent in studying the morphology of such simple cells; hence there has been a succession of names introduced into the literature of this chapter of protozoology, only to be corrected or excluded from year to year. The classification submitted by Craig[2] to the Pan-American Scientific Congress early in 1916 has already become amended in various particulars.

According to a recent report[3] to the Medical Research Committee in Great Britain, it is now becoming generally recognized that there are three different amebas which may be present in the human bowel—the harmless *Endameba coli* and *"Endameba" nana,* and the pathogenic *E. histolytica* responsible for human dysentery. Dobell and Jepps[4] have lately asserted that the latter is a collective species, comprising a number of distinct races, strains or pure lines, distinguishable from one another by the size of the cysts that they produce. The existence of at least five such is already claimed. There is no evidence that the different races differ in their geographic distribution or in any character except size. Furthermore, these races remain constant in character within a given host, and the dimensions of the cysts are not determined by the action of the host on the parasite. In the judgment of the British protozoologists, it is practically important to recognize and distinguish the diverse races of endamebas, since in human feces the cysts are found with all diameters in a range in which noxious and innocuous forms overlap each other.

To the species of intestinal amebas just discussed Jepps and Dobell[5] have recently added a new one, deserving the dignity of a new generic name, *Diendameba fragilis.* It is a very small organism having as its most characteristic feature a duplicate nucleate system which has suggested its designation and is sufficient to distinguish it from the other species. The extreme frailness of the individuals makes it difficult to examine them in undegenerated forms except in very fresh stools, and preferably on a warm stage. No cysts or stages resembling them have ever been found; hence the difficulty of ascertaining or understanding the mode of transmission from host to host. The food of this ameba appears to consist entirely of small bacteria and yeasts living in the intestinal contents. The indications at present, which need to be substantiated by better evidence, are that it lives in the colon. There is no reason, as yet at least, to believe that *Diendameba* is a pathogenic organism.

TRAUMA AND SHOCK

Students of the ever recurring problem of shock have repeatedly pointed out seemingly irreconcilable differences between the phenomena observed by the physiologist in his laboratory manifestations and the human cases of trauma and shock that come to the attention of the surgeon. The latter observes shock as a sequence of trauma and severe pain, whereas the experimental investigator has all too often seemed to be unable to provoke the symptoms by these agencies. Wiggers[6] has pointed out, however, that in addition to the condition of low arterial pressure and an impaired peripheral circulation which the laboratory workers look on as the characteristic of shock, there is strong evidence of a clinical, experimental and even morphologic sort that functional or physical damage to the central nervous system forms an important feature likewise. Hence, says Wiggers, in regarding the shock-producing power of trauma applied peripherally, it is necessary to consider not only whether the blood pressure may be reduced to a low level in this way, but also whether demonstrable functional changes in the central nervous system take place. In other words, to the criterion of circulatory failure with its consequent impaired *blood* supply to the tissues and its low blood pressure must be added the determination of the existence of a functional nervous impairment represented by apathy, reduced or abolished sensibility, and loss of reflexes.

---

[1] Leidy, Joseph: On Amoeba Blattae, Proc. Acad. Nat. Sc., Philadelphia, 1879, **31**, 204.

[2] Craig, C. F.: The Classification of the Parasitic Amebae of Man, Proc. Second Pan-American Scientific Cong., 1917, **10**, 536.

[3] Dobell, C., and Jepps, Margaret W.: On the Three Common Intestinal Entamoebae of Man, and Their Differential Diagnosis, Brit. Med. Jour., 1917, **1**, 607.

[4] Dobell, C., and Jepps, Margaret W.: A Study of the Diverse Races of Entamoeba Histolytica Distinguishable from One Another by the Dimensions of Their Cysts, Parasitology, 1918, **10**, 320.

[5] Jepps, Margaret W., and Dobell, C.: Dientamoeba Fragilis, n. g., n. sp., a New Intestinal Amoeba from Man, Parasitology, 1918, **10**, 352.

[6] Wiggers, C. J.: Shock and Circulatory Failure Following Trauma, Am. Jour. Physiol., 1918, **46**, 314.

In experiments conducted at the Cornell University Medical College in New York City, Wiggers has now demonstrated that a state of shock involving the central nervous system can be produced experimentally by trauma. It may or may not be fatal. Prolonged sensory stimulation, in contrast with severe tissue injury, may cause a temporary depression of the functions of the central nervous system, but in itself does not lead to permanent changes or death. It must not be assumed that such symptoms of shock may occur without circulatory involvement; for whenever "central nervous system shock" develops as a result of trauma it is always accompanied by distinct circulatory changes in the nature of a prolonged low peripheral resistance. The mean arterial pressure may be maintained by other factors; hence it no longer is a reliable index of the circulation. This explains why the existence of the impaired blood flow has heretofore sometimes been overlooked.

The initial stage of the circulatory disturbance is in all cases apparently represented by a reduced peripheral resistance. When the termination is fatal, the effective venous pressure falls early. At the resultant low level the cardiac discharge is accordingly reduced, so that complete circulatory failure ensues. The important fact to bear in mind is that a serious involvement of the circulation may be impending before the familiar dangerously low arterial pressure manifests itself. This is what the newer methods of hemodynamics have succeeded in revealing.

INDUSTRIAL FATIGUE

Real efficiency, not the efficiency that comes from destroying one's competitors or undermining them by intrigue, but the wholesome kind of efficiency that is signalized by a maximal continuous output of high quality, is today demanded by the world more than ever before. Many factors influence human working powers, and the scientific analysis and evolution of these factors can hardly be said to have gone beyond the initial stage. It is even now clearly seen, however, that one very important handicap to the attainment of efficiency is the production of excessive fatigue by excessive work. A paper recently prepared by the Divisional Committee on Industrial Fatigue for the use of manufacturers in the present emergency embodies a series of clear statements of the ways in which industrial fatigue interferes with maximal output and of the best known methods for reducing fatigue.[1] Many administrators, writers and other sedentary workers have long since learned for themselves the lesson that the overtaxed mind, the jaded imagination, cannot be driven advantageously beyond a certain point. Mental fatigue is one of the well-recognized barriers to mental efficiency. Long hours do not connote a satisfactory productive activity of the mind; often they connote the reverse. It may, however, come as a surprise to some manufacturers to learn that when industrial output can be measured, a lessening of the hours of labor is sometimes actually accompanied by an increased production. In the instance of an English munition factory cited in the paper referred to, when the average weekly hours of men sizing fuse bodies were reduced from 58.2 to 51.2, the total output was increased 21 per cent. A certain granite-cutting company found that "the same man under identically the same conditions accomplished more of the same kind of work when he was working nine hours than he did when he was working ten hours. And again when the hours were reduced to eight hours, this same man accomplished still more in an eight-hour day than he did in a nine-hour day, or a considerable amount more than he did when the day was ten hours long."

Among the ways of reducing fatigue suggested in the report are the introduction of recess periods, the proper supervision of ventilation and other sanitary conditions within factories, the avoidance just as far as possible of overtime and Sunday work, the adjustment of speed to individual capacity, and the introduction of occasional variety into the work of those engaged in the often monotonous machine processes. The results achieved by the application of such methods have frequently been surprisingly satisfactory, and encourage their extension and trial on a wide scale. As a practical hint the committee is careful to point out the necessity of using objective methods of measuring and detecting fatigue. Not every man who thinks he is fatigued is really so. It does not follow that because many workers accomplish more in eight hours than in ten, they would accomplish more in two hours than in eight. The committee also touches on the psychologic factors involved, and more might well have been said on this point. The good spirit of the worker, his friendly attitude toward his employer, is a particularly important stimulus to output. The old copybook adage that willing hands make light work is as true as it ever was. The immediate and marvelous success of the reorganized Shipping Board testifies to the value of good will as a factor in industry. Fatigue is somehow lessened or its coming retarded wherever work is carried on in a spirit of eager cooperation and enthusiasm.

It may be remarked, finally, that possibly military as well as manufacturing establishments may find some suggestions of value in the consideration of the factors and significance of industrial fatigue. Apparent speed-ing up by long hours and excessive muscular work may in some cases lead to a delay in reaching the end desired. The admirable results already attained in our training camps by recognition of many of these factors of fatigue are well known. The new recruit is not inured to fatigue work rapidly by becoming fatigued too much or too frequently.

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[1] How Industrial Fatigue May Be Reduced, Pub. Health Rep., 1918, 33, 1347.

POISONING IN PAINTERS

The war, which has served to speed up to an enormous extent all of the fundamental industries, has also served thereby to direct greater attention to the dangers incident to many of the vocations. Human initiative and man power have become tremendously valuable forces which no government can afford to neglect when every iota must be conserved and utilized to meet the great emergencies of the time. The investigation of occupational diseases has accordingly assumed importance in far greater measure than appeared to be the case in the more easy-going days before the world conflict. Some of the hazards that beset the industrial worker are rendered conspicuous by the obvious character of the harm that is done. Injuries by frequent accidents, mutilations from machinery mismanagement, and physical deterioration from extreme exposures or excessive fatigue belong in such categories. But there are more subtle dangers that injure the individual in insidious and unsuspected ways. To discover these is the task of modern occupational hygiene.

An excellent illustration of what this branch of preventive medicine can accomplish is afforded by Harris[1] in a study of poisoning in painters. It has a peculiar import from the fact that frequently those already affected do not suspect the existence of symptoms of harm; still others do not seek medical aid until they have had a breakdown; and not infrequently the origin of the complaints of the afflicted fails to be identified as due to industrial conditions. In New York, Harris found a rate of prevalence of 40 per cent. of active cases of lead poisoning in examinations of more than 400 painters at the Occupational Clinic of the Health Bureau's Division of Industrial Hygiene. All of these showed definite clinical signs of plumbism, and half of the affected group were found to have lead in the urine—a significant sign—in addition to the more purely clinical evidence. The heaviest incidence of saturnism was among those who had been painters ten years or more. The action of lead is slow in asserting itself, but according to Harris less than half who have passed the age of 40 as painters escape the disease.

Of the various safeguards proposed to reduce the danger of the painter's work none rank above personal hygiene: Workers ought to be made more familiar with the hazards that lead, turpentine and benzin entail. They should be educated to make more than a perfunctory exercise of washing the face, hands, mouth and beard, particularly before eating. Facilities for cleanliness should be more available. Meanwhile, Harris[1] believes, compensation for occupational diseases, and for occupational lead poisoning in particular, will do more to safeguard the health and lives of workers than any other single legal or hygienic measure. Nevertheless we cannot absolve the individual from his share of personal responsibility acquired by an intelligent recognition of the character of his occupation.

CALCIUM AND FAT UTILIZATION IN INFANCY

The ardent controversy as to the mode of absorption of fats from the alimentary tract has been settled. Although it would be difficult to demonstrate that no portion of ingested fat passes unaltered through the intestinal epithelium, there is no ground for believing in the older theory of absorption, which postulates the transit of the fat in emulsified form. On the contrary, there is reason to conclude that fats are chemically split in the gastro-intestinal canal into fatty acids and glycerol. The fatty acids react readily with bases to form soaps. The alkali soaps of sodium and potassium are somewhat soluble, whereas those of calcium and magnesium tend to be insoluble. Consequently, soaps of calcium are not infrequently found in the stools, particularly in the case of infants.

These are familiar facts of elementary physiologic chemistry. The deductions drawn from them have not always been as logical as the facts might demand. The appearance of soaps in the feces has been interpreted as an indication of the faulty digestion of fats. As a rule, this group of nutrients has thereupon been excluded from the diet or greatly reduced in quantity. Not infrequently, good results have followed the reduction of the fat content of milk in cases of infants exhibiting soap in the stools. Among these are the cases of so-called "fat intolerance."

A group of investigators[1] at the Boston Floating Hospital Laboratories and the Pediatric Department of the Harvard Medical School have directed attention, in cases which have generally been considered to show abnormalities in their utilization of fats, to the calcium factor in the diet rather than to the fatty acid component. They point out that a modification of cow's milk which gives a food containing the desired amounts of fat, sugar and protein does not modify or rearrange the inorganic constituents of the milk. The Boston pediatricians remind us that cow's milk is nature's food for the offspring of the cow, contains inorganic constituents in sufficient amounts to supply the demands of the rapid growth and development of this animal, and is especially rich in calcium and phosphoric acid, substances which the young of the cow use to develop rapidly growing bone tissue, but which the infant uses very sparingly. When fed to infants in the proportions found in cow's milk or modified cow's milk, these substances are greatly in excess of the amounts required to supply the demands of the infant, and hence are eliminated either in the urine or in the feces.

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[1] Harris, L. I.: A Clinical Study of the Frequency of Lead, Turpentine and Benzin Poisoning in Four Hundred Painters, Arch. Int. Med., August, 1918, p. 129.

[1] Bosworth, A. W.; Bowditch, H. I., and Giblin, Louise A.: Studies of Infant Feeding, X, The Digestion and Absorption of Fats. I. Calcium in Its Relation to the Absorption of Fatty Acids, Am. Jour. Dis. Child., June, 1918, p. 397.

The assertion that many of the troubles encountered with bottle-fed infants receiving cow's milk must be attributed to the ill effects chargeable to the calcium in it is believed to be substantiated by experience with novel methods of modifying cow's milk. According to Bosworth, Bowditch and Giblin, it is possible to "reconstruct" the latter so as to remove much of the calcium. By the use of this reconstructed milk, very favorable results are said to have been obtained in suitable cases thus far encountered. In some classified as "fat intolerance" and "infantile atrophy," improvement has resulted from its use. We shall await the promised directions for the preparation of the feeding mixtures from cow's milk with their resultant lower content of calcium—products which are reported to offer little or no interference to the utilization of fat in cases otherwise difficult to manage dietetically without breast milk.

The Boston investigators present a further aspect of the relation of calcium to absorption by reminding us that although cow's milk has a high content of this element, the calcium metabolism of bottle-fed infants, as measured by the calcium eliminated in the urine, is seldom greater, and often less, than that found in breast-fed infants, most of the calcium being eliminated in the feces as insoluble calcium phosphate and calcium soaps. While this mode, they add, of eliminating the excess of calcium present in cow's milk is in one way a protection to the infant, in that it prevents the calcium from entering the body fluids and tissues in organic combination, subsequently to set up a toxic condition, it may, on the other hand, bring about marked nutritional disturbance. Before any profoundly divergent deductions are drawn, however, we must bear in mind that animal experiments have demonstrated beyond question that growth can proceed very satisfactorily even when inorganic salts of lime and phosphoric acid form the sole sources of these elements in the diet.

Furthermore, Holt, Courtney and Fales[2] of the Babies' Hospital in New York have challenged some of the contentions of the Boston pediatricians. They deny that there need be a serious loss of fat (otherwise than through diarrhea) when the usual simple dilutions of cow's milk are fed, whether the stools are formed or semiformed and soapy. They present evidence that a high calcium content of the intake does not necessarily cause a large fat loss in the feces. But what seems most important is the not inconsiderable risk which may attend a great reduction of the calcium in the food. We believe that prudence warrants the warning of Holt and his collaborators:

> Unless the harm caused by a fairly high calcium intake can be quite definitely demonstrated, it would seem safer to allow an excess of calcium in the intake rather than to run any risk of providing less calcium than is needed for the normal growth of the bones. A number of cases of so-called intestinal infantilism have come under our observation. The most significant fact in the history of these cases is the extremely low intake of calcium in their previous feeding. The large calcium requirement of children with a tendency to rickets hardly needs mentioning in this connection. The calcium in breast milk, though smaller in quantity, may be more available than that of cow's milk; however, it is well known that many cases of rickets and tetany occur in children fed *too long* exclusively on breast milk.

Current Comment

THE STUDENTS' ARMY TRAINING CORPS

The Students' Army Training Corps, to which reference has already been made in The Journal,[1] has now become an actuality. Units have been established at a large number of colleges and universities. A statement issued by the Committee on Education and Special Training of the War Department urges that every young man who has been planning to go to college this fall should enter the institution of his choice, matriculate and enter as a regular student. Of course, he will have registered on September 12, as required of all other men of draft age, but this will not prevent his enlisting in the Students' Army Training Corps, into which he will be inducted about October 1. By this voluntary induction the student becomes a soldier in the United States Army; he will be placed in uniform, be subject to military discipline, and will be given the pay of a private. The government also pays his tuition, housing and subsistence. Each college is provided with officers, uniforms, rifles and such other equipment as may be necessary, and essential teachers will be retained so far as is possible. The student soldiers will be given military instruction under officers of the Army and will be kept under observation and test to determine their qualifications as officer candidates and technical experts, such as engineers, chemists and physicians. After a certain period, men will be selected according to their accomplishments and assigned to military duty. A student may be assigned to an officers' training camp, to a noncommissioned officers' school, to a school for further intensive work in a specified line, or to a vocational training section of the corps for technical training of military value, or he may be transferred to a cantonment for duty with troops as a private. It is planned to have similar sortings and reassignments of men made at periodic intervals, probably at the end of each quarter, as the requirements of the service may demand. Students will not ordinarily be permitted to remain in the college units after the majority of their fellow citizens of like age have been called to military service. Exception to this rule will be made as the needs of the service require it in the case of technical and scientific students, who will be assigned for longer periods of study in specified lines. The technical students referred to are those taking courses in medicine, engineering and chemistry. A schedule of military work has been outlined, but this is not intended to preclude effective academic work. It will vary to some extent in accordance with the type of academic instruction taken; for example, it will be less in a medical school than in a college of liberal arts. Meanwhile, medical students in the Medical Enlisted Reserve Corps are to be called to active duty in the Students' Army Training Corps and be placed on the same basis as regards uniforms, tuition, board and housing. It is clear that premedical students are eligible for enlistment in the Students' Army Training Corps, but what disposition will be made of them is not yet clearly stated. They will be expected to remain at their studies, however, until called into active service.

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[2] Holt, L. E.; Courtney, Angelia M., and Fales, Helen L.: Is the Amount of Calcium Usually Given in Dilutions of Cow's Milk Injurious to Infants? Am. Jour. Dis. Child., July, 1918, p. 52.

[1] Medical Education and the War, Current Comment, The Journal A. M. A., Aug. 10, 1918, p. 568.

THE METABOLISM OF GROWING BOYS

The large appetites of boys and girls have been observed by many a parent; but men of science have usually failed until recently to grasp the true physiologic significance of this desire for food. The real explanation has been furnished by the calorimetric observations of Du Bois[1] on the effect of age on heat production in man. He showed, as has been recorded more than once in The Journal, that the basal metabolism in boys of 12 is 25 per cent. higher than for an adult of the same height and weight, or 50 calories per square meter of body surface—the conventional unit of such measurements. Indeed, metabolism is in general relatively high in childhood, falling rapidly in adolescence, and then decreasing slowly during the rest of life. It is interesting and fortunate from a scientific standpoint that Du Bois has been able to repeat the measurements of the basal metabolism at a later period in the same subjects—Boy Scouts—whom he originally examined some time before puberty. The statistics obtained, in conjunction with Olmstead and Barr,[2] represent the results applicable after a period of two years. All of the boys, some of whom were then exhibiting signs of puberty, showed a marked decrease in metabolism. The fall incident to their adolescence is represented by the new figure, 44 calories per hour per square meter of body surface, as the average for the ages of 14 to 15 years. This is a decrease of 13 per cent. for the seven cases studied. The metabolism is, however, still 11 per cent. above the average for adult men between the ages of 20 and 40 years. Women show a metabolism that is 7 per cent. lower than that of men, or 37 calories per hour per square meter of surface. As an indication of the pronounced influence of youth on the transformation of energy in the body, Du Bois and his collaborators have actually demonstrated that the metabolism in the same boys during the twelfth year was actually greater in calories produced than during the fourteenth year, although the boys showed a gain in weight of between 35 and 50 per cent. Lusk[3] has expressed the situation in another way: The basal metabolism of an average boy of 13 years of age weighing 80 pounds and of a height of 4 feet, 10 inches may be calculated as 1,525 calories a day. This is the same as that of a man 25 years old, weighing 126 pounds and 5 feet, 2 inches tall. All of this means that a growing boy of 12 or 13 may need as much food as his father.

THE ESTIMATION OF HEMOGLOBIN

Any one who is familiar with the technic of hemoglobin estimation in the blood must recognize the empiric character of most commonly used procedures. The results obtained by the usual colorimetric readings are generally expressed in terms of percentages of the "normal," as if the latter were a fixed and readily defined standard that is obviously constant and dependable. How far from the facts such a conclusion is was clearly pointed out in 1916 by Williamson.[4] His elaborate investigation, in which the blood hemoglobin of many persons of widely varying age was accurately determined by the spectrophotometric method, brought out clearly the importance of the age factor. The amount of hemoglobin of normal persons varies so greatly at different periods of life that in determining whether a given blood contains more or less of the pigment than normal it is demonstrated to be imperative to consider the age. The variations follow a well defined curve, according to Williamson's experience, being greatest in the period preceding the sixteenth year. Between the ages of 16 and 60 there is a marked difference between the two sexes, this difference growing less after the sixtieth year. For example, the average content of hemoglobin, in grams per hundred c.c. of blood, range from 23 at birth to less than 13 at the age of 2 years, and to approximately 16 after puberty. Recently Appleton,[5] working at the Hooper Foundation for Medical Research, San Francisco, and the Lying-In Hospital, New York, has applied accurate methods in the examination of the blood of 103 children less than 2 years of age. His data likewise show the early rapid decrease and later more gradual decrease as found by previous authors. The variations in children of the same age are noticeable in the early days of life. Thus, if we take as 100 per cent. the average for normal adults, the figures for the children range from 164 per cent. on the first day after birth to 85 per cent. by the end of from 11 to 23 months. These data from normal children, says Appleton, taken with those of previous authors, emphasize the necessity of interpreting hemoglobin determinations in infants with the values normal for the age of the subject, rather than those normal for an adult, as standard. Similarly in older persons the variations of normal values with age and sex must be kept in mind when accurate information in this field is a prime factor.

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[1] Du Bois, E. F.: Clinical Calorimetry, Paper 12, The Metabolism of Boys Twelve and Thirteen Years Old Compared with the Metabolism at Other Ages, Arch. Int. Med., June, 1916, p. 887.

[2] Olmstead, W. H.; Barr, D. P., and Du Bois, E. F.: Clinical Calorimetry, Paper 27, Metabolism of Boys Twelve and Fourteen Years Old, Arch. Int. Med., May, 1918, p. 621.

[3] Lusk, Graham: Food in War Time, 1918, p. 29.

[4] Williamson, C. S.: Influence of Age and Sex on Hemoglobin: A Spectrophotometric Analysis of Nine Hundred and Nineteen Cases, Arch. Int. Med., October, 1916, p. 505.

[5] Appleton, V. B.: Determination of Hemoglobin During Infancy by the Palmer and Van Slyke Methods, Jour. Biol. Chem., 1918, 34, 369.

Medical Mobilization and the War

Surgeon-General Goes Overseas

Major-General William C. Gorgas, Surgeon-General, U. S. Army, arrived safely in France, September 8.

Work Rushed on Marine Hospitals

To hasten the construction of six new marine hospitals the President, September 5, temporarily suspended the provisions of the eight-hour law. The new hospitals will be located at Boston, Baltimore, Detroit, New Orleans, San Francisco and Savannah.

Personnel of the Medical Department

For the week ending Sept. 6, 1918, the personnel of the Medical Department of the Army included:

Medical Corps: 933, including 1 major-general, 63 colonels, 112 lieutenant-colonels, 295 majors and 462 lieutenants.

Medical Reserve Corps: 23,672, including 1 colonel, 8 lieutenant-colonels, 1,586 majors, 7,221 captains and 14,856, lieutenants. On active duty: *23,590*, including 1 colonel, 8 lieutenant-colonels, 1,582 majors, 7,187 captains and 14,812 lieutenants.

Medical Corps, National Guard: 1,193, including 22 lieutenant-colonels, *263 majors, 257 captains and 651 lieutenants.*

Medical Corps, National Army: 372, including 6 brigadier-generals, 94 colonels, 261 lieutenant-colonels, 9 majors, and 2 captains.

The Discharges to date are:

	Number		
Causes	M.C.N.A.	M.R.C.	M.C.N.G.
Physical disability	0	777	56
Inaptitude	0	286	22
Other branches of the service	3	647	76
Resignations	0	208	35
Domestic troubles	0	62	1
Needed by community	1	49	0
Deaths	1	104	7
Dismissals	0	18	4
Duty completed	0	3	0
No reason given	0	15	1
	5	2,169	202

COMMUNICABLE DISEASES IN THE UNITED STATES ARMY

The Section of Communicable Diseases, Division of Sanitation, U. S. Army Medical Department, publishes a report[1] of a study made of the status of health matters in our Army by Col. Victor C. Vaughan and Capt. George T. Palmer. The study covered a period of six months, from Sept. 29, 1917, to March 29, 1918, dealing for the most part with thirteen National Guard camps and sixteen National Army cantonments, which represent over 70 per cent. of the troops in this country during the period in question.

The death rate per thousand was 9.1 per cent. higher than that of New York, St. Louis, Pittsburgh or Chicago, but was exceeded by the death rate of New Orleans; the final analysis, however, of all the data obtained by the investigators showed conclusively that this death rate is not the result of conditions inherent in the camps and cantonments but of the personal equation, if one may use the term in this connection. The death rate in many of the camps and cantonments was considerably lower than that of the cities mentioned, less than half, demonstrating that camp life may be made as safe as that in some of our cities in which health is best guarded, and, indeed, may show a lower death rate in the corresponding age group. It is worthy of note that the death rate of the camps compared favorably with the death rate of the city or state or *region from* which the troops stationed in these camps were drawn.

Some of the reasons given for the wide variation in the death rates in the *different camps* are: 1. Some of the camps have acted as filters through which many troops have passed, leaving their most unfit on the filter. Those camps which may be designated as closed camps and which have been least employed as filters are the healthiest camps. 2. Under similar conditions the negro is more susceptible to the acute respiratory diseases than the Northern white man. Southern whites are more susceptible to pneumonia than Northern whites. In Southern camps, hookworm disease and chronic malarial infection increase susceptibility to the acute respiratory diseases. The investigation showed very conclusively that there is no reason for believing that either morbidity or mortality in any camp has been due to faulty sanitation. All camps are kept clean, and have unquestioned water supplies, satisfactory garbage and sewage removal, etc. The insanitary camp of 1898 does not exist today in the United States Army.

The principal cause of death has been pneumonia, 61.5 per cent. Only 16 per cent. of all deaths have been due to other diseases (excluding *7 per cent. due to injury*) than pneumonia, meningitis, measles, scarlet fever, diphtheria and tuberculosis. Only 0.14 per cent. of all deaths were due to typhoid and paratyphoid fever, showing the great value of prophylactic inoculation against these diseases. The tuberculosis death rate was 1.7 per cent.; measles, 1.1 per cent.; scarlet fever, 0.75 per cent.; diphtheria, 0.46 per cent.; meningitis, 12 per cent. Measles, pneumonia, meningitis and scarlet fever *have existed in epidemic form in a number of camps.* Measles has been by far the most prevalent of the four; scarlet fever has been of minor consequence. Mumps, bronchitis and influenza have likewise been widespread, and, although not fatal in themselves, have frequently been forerunners of pneumonia.

Reviewing their study of the situation, the authors feel that the greatest single factor in the prevalence of disease in certain camps and their absence in others has been the natural susceptibility of the men. Venereal disease is excessive. *Insufficient attention is paid to the character and quality of food consumed; these men have not learned that diseases are* transmitted by germs most of which gain access to the body through the mouth and nose. Spitting is promiscuous. Then, there have been those aggravating factors, such as exposure, fatigue, lack of warm clothing, cold quarters by day, and cold quarters and insufficient bedding by night.

The remedy? First and foremost it seems necessary to graduate the introduction of civilians into Army life. The change has been too abrupt. Men should be called first to a semiactive reserve army. Here they should get drill and the essentials of sanitation and self-care by lecture and by demonstration. After this the transfer should be made to camp, where a man's entire time is given over to military training. Before entering camp, men should be examined for incipient disease. The suspects should be watched after separation and before their dispatch to camp. Once established in camp, transfer from camp to camp should be preceded by a thorough examination and removal of those who show signs of illness. These precautions, together with care in the proper mixture of work and rest, judicious selection in the quality and balancing of the food ration, the adequate protection of the man against cold and exposure, his protection against the sick through effective quarantine measures, and *discretion in the use of the physical hardening process* should moderate to a large degree the experiences of the past winter.

Sick and Wounded

Bulletin 44, dated July 26, 1918, concerning the sick and wounded brought from England or France prescribes:

(*a*) Sick and wounded being brought from France or England to U. S. will be brought in Navy hospital ships or transports, whichever may be most suitable and available, except in special cases where transportation by commercial lines may be authorized.

(*b*) The Army will be in charge of embarkation and debarkation of all Army patients.

(*c*) The Navy will be charged with care of these patients while on board ships of the Navy acting as transports or otherwise. At request of Navy the Army will render such assistance in personnel and material as may be necessary.

(*d*) The Commanding General of American Expeditionary Force will decide what class of patients and numbers of each he desires returned to U. S. He will ascertain actual number of each class that can be accommodated on each vessel from senior naval surgeon through commanding officer of that vessel and will not exceed that number.

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[1] Jour. Lab. and Clin. Med., 1918, 3, 635.

DISEASE CONDITIONS AMONG TROOPS IN THE UNITED STATES FOR THE WEEK ENDING AUGUST 30, 1918*

(Compiled from Telegraphic Reports Received in the Office of the Surgeon-General)

1. ANNUAL ADMISSION RATE PER 1,000 (disease only):

	This Week	Last Week
All Troops	909.6	933.8
Divisional Camps	1,123.48	1,193.6
Cantonments	990.9	930.3
Departmental and Other Troops	698.2	786.6

2. NONEFFECTIVE RATE PER 1,000 ON DAY OF REPORT;

	This Week	Last Week
All Troops	37.44	36.25
Divisional Camps	46.14	41.93
Cantonments	40.15	37.77
Departmental and Other Troops	29.55	31.10

3. ANNUAL DEATH RATE PER 1,000 (disease only):

	This Week	Last Week
All Troops	3.35	2.96
Divisional Camps	5.49	2.53
Cantonments	3.07	3.56
Departmental and Other Troops	2.51	2.48

*Including Porto Rico.

CASES OF SPECIAL DISEASES REPORTED DURING THE WEEK ENDING AUG. 30, 1918

Camps	Pneumonia	Dysentery	Malaria	Venereal		Measles	Meningitis	Scarlet Fever	Deaths	Annual Admission Rate per 1,000 (Disease Only)	Noneffective per 1,000
				Total	New Infections						
Beauregard	4	..	5	96	2	10	..	..	0	1,808.4	84.18
Bowie	2	1	1	43	5	...	..	..	1	1,277.5	29.64
Cody	10	..	..	16	0	3	..	..	3	747.1	99.97
Fremont	30	..	..	72	20	4	..	..	10	602.7	37.92
Greene	..	..	..	80	3	...	..	..	0	920.5	37.99
Greenleaf	3	..	1	11	0	15	..	2	1	556.2	37.25
Hancock	2	..	6	151	20	...	..	..	1	1,416.0	36.75
Kearney	..	..	..	22	5	...	..	..	0	904.6	55.26
Logan	2	..	22	43	16	...	..	..	0	1,669.7	52.29
MacArthur	6	1	..	17	7	20	..	..	0	992.8	62.71
McClellan	8	..	2	64	1	24	..	..	1	1,162.7	47.23
Sevier	3	..	5	26	3	9	..	..	0	666.3	41.24
Shelby	17	3	11	72	9	75	1	..	5	1,476.5	52.00
Sheridan	2	..	1	268	19	18	..	..	0	1,821.3	48.56
Syracuse	..	..	..	130	0	1	..	..	0	1,333.6	67.90
Wadsworth	7	..	..	145	0	1	..	..	4	836.0	39.41
Wheeler	71	..	..	39	5	...	1	..	7	1,000.9	33.85
Custer	7	..	..	57	6	1	..	..	1	623.0	11.87
Devens	61	..	..	44	22	22	3	1	4	486.5	34.50
Dix	5	4	4	91	0	11	..	..	0	356.2	41.04
Dodge	8	..	..	208	3	38	..	..	1	1,361.8	74.14
Funston	8	..	..	59	2	56	..	..	1	1,740.7	32.18
Gordon	23	..	2	113	2	71	1	..	6	1,656.9	66.28
Grant	4	..	1	31	0	8	..	2	3	328.4	14.80
Humphreys	11	2	6	38	3	15	..	..	0	653.4	22.20
Jackson	..	3	7	869	3	16	1	..	2	1,747.2	45.86
J. E. Johnston	3	..	8	39	26	13	..	1	1	1,048.3	32.12
Las Casas	4	..	..	9	9	72	..	..	0	1,508.1	57.05
Lee	1	..	..	65	0	12	..	..	1	699.7	44.40
Lewis	23	..	..	104	4	5	..	..	0	876.4	43.50
Meade	9	1	..	446	4	12	2	..	3	919.9	20.59
Pike	17	..	20	56	1	54	1	..	9	823.4	49.35
Sherman	8	..	..	98	0	14	..	..	1	1,435.8	66.16
Taylor	7	..	..	99	5	43	..	..	3	819.9	33.05
Travis	9	2	2	121	5	...	..	..	5	1,445.2	46.46
Upton	1	..	..	163	12	6	..	1	3	731.0	41.56
N. E. Department	..	..	..	25	5	4	..	..	0	613.9	22.04
Eastern Dept.	1	..	2	86	43	15	..	..	6	582.5	17.63
S. E. Department	2	1	9	55	17	15	..	..	0	1,289.2	49.93
Central Dept.	1	..	..	62	0	2	..	2	0	901.1	22.36
Southern Dept.	1	4	6	94	34	2	1	2	12	657.5	30.96
Western Dept.	..	..	..	39	9	...	..	..	1	742.3	17.03
Aviation Camps	5	..	10	127	0	18	1	..	11	783.6	29.23
Ports of Embarkation:											
Hoboken	14	4	6	321	60	37	1	..	0	839.4	49.20
Newport News	23	4	21	95	9	12	1	..	1	758.3	56.97
Alcatraz	..	..	..	1	0	...	..	..	0	894.0	25.78
Leavenworth, D. B.	..	..	..	...	...	...	..	..	0	728.9	27.07
Columbus Bks.	2	..	..	3	0	...	..	..	0	543.2	39.69
Jefferson Bks.	..	..	2	60	1	3	..	..	1	1,816.7	115.49
Fort Logan	..	..	..	1	0	...	..	..	0	763.0	68.96
Fort McDowell	..	..	..	10	4	...	..	..	0	1,042.3	73.49
Fort Slocum	..	..	1	11	0	1	..	..	1	794.7	51.82
Fort Thomas	..	..	..	3	0	1	..	..	0	656.3	41.57
West Point	..	..	..	2	0	...	..	..	0	1,004.8	10.73
Arsenals	4	..	1	9	5	5	1	..	1	556.2	18.99
Miscellaneous:									0	638.4	10.02
Small Stations	..	..	1	1	0	...	..	..	11		
Gen'l Hospitals	..	..	..	...	...	...	..	..			
Totals	429	30	163	5,010	404	764	15	11	122	909.6	37.44

ANNUAL RATE PER 1,000 FOR SPECIAL DISEASES

	All Troops in U. S., Week Ending Aug. 30, 1918	Departmental and Other Troops, Week Ending Aug. 30, 1918	Divisional Camps, Week Ending Aug. 30, 1918	Cantonments, Week Ending Aug. 30, 1918	Expeditionary Forces, Week Ending Aug. 30, 1918
Pneumonia	14.66	4.93	28.68	16.47	8.45
Dysentery	1.02	1.21	0.85	0.94	3.44
Malaria	5.57	5.49	9.27	3.94	1.22
Venereal	171.3	93.6	222.46	213.6	19.5
Paratyphoid	0.0	0.0	0.0	0.0	0.12
Typhoid	0.20	0.28	0.34	0.08	1.26
Measles	26.12	10.71	30.92	36.97	11.58
Meningitis	0.51	0.46	0.34	0.63	1.14
Scarlet fever	0.37	0.37	0.34	0.39	1.30

Physical Examination on Embarkation

General Order 72, dated Aug. 6, 1918, concerning physical examination on embarkation prescribes:

II.—1. When a command receives orders for overseas service, all officers and enlisted men will be given a careful physical examination by medical officers, in order to determine whether or not they are fitted for full military duty in the field. Officers and enlisted men found to be physically unfit for such service will be promptly transferred from the organization and will not accompany their organization to port of embarkation. As far as practicable this examination should be made by medical officers not attached to organization undergoing examination. Camp commanders are responsible for thoroughness of physical *examinations of all troops leaving their camps. With a view to reducing* number of individuals which must be eliminated on receipt of orders for overseas service, it is of utmost importance that men with defects which disable for duty overseas should be transferred to development battalions, or otherwise disposed of, as soon as defects are detected.

2. Similar action should be taken to eliminate physically unfit when enlisted men are transferred from one camp or station to another camp or station for duty.

3. In both above instances specific exceptions may be made in case of men who are being sent to a point where they are destined for special or limited military service only.

4. Nothing in above instructions shall be interpreted to modify existing instructions regarding examinations for and elimination of cases of infectious disease, "contacts," and men infested with vermin in organizations moving from one camp or station to another camp or station or to a port of embarkation.

5. In case men arrive at or are sent to join organizations at port of embarkation who, for any reason, have not been given physical examination referred to above to eliminate those physically unfit for field service overseas, *the C. O. of organization containing* such non-examined men will report fact to commanding general of port of embarkation, who will have rigid physical examination made for such men to determine their fitness for field service overseas.

6. All instructions given previously on subject of physical examinations and at variance with these instructions are hereby revoked.

COMMISSIONS ACCEPTED, U. S. NAVAL RESERVE FORCE

Previous lists published in The Journal, June 29, July 13, 20 and 27, August 3, 10 and 31, and September 7.

ALABAMA

Goshen-Kyzar, J. H.

CALIFORNIA

Los Angeles—Castle, C. H.
Dougall, J. P.
Hutchinson, W. W.
Reeves, J. W.
San Diego—Thornton, A. J.
San Francisco—Hund, E. J.

COLORADO

Boulder—Proffitt, R. V.

CONNECTICUT

Bridgeport—Zonn, S. I.

DISTRICT OF COLUMBIA

Washington—Taylor, L. H.

FLORIDA

Tampa—Beyer, A. R.

GEORGIA

Richland—Pickett, C. E.

ILLINOIS

Chicago—Healy, M. E.
Hoodlett, J. J.
Youngs, C. A.
Glencoe—Athay, R. M.
Springfield—Southwick, H. H.

KANSAS

Topeka—Weidling, W. H.

MAINE

Portland—Leighton, A. P., Jr.

MASSACHUSETTS

Boston—Cotter, E. J.
Miniter, F. G.
Cambridge—Feeley, W. C.
Noonan, W. A.
Gardner—Jewett, E. P.
Holyoke—Brady, W. F.
New Bedford—Foster, E. E.
Sandwich—Currier, C. R.

MINNESOTA

Minneapolis—Eisenberg, D. E.

MISSOURI

St. Joseph—Ludwig, F.

NEVADA

Reno—Dahl, W. Z.
Samuels, W. L.

NEW HAMPSHIRE

Rochester—Roberts, W. J.

NEW YORK

Brockton—Brainard, F. J.
New York—Dalton, W. A.
Gillette, G. H.

OHIO

Columbus—Minthorn, H. A.

OREGON

Portland—Hare, W. B.

PENNSYLVANIA

Canton—Dann, A. E.
Harrisburg—Kilgore, F. D.
Philadelphia—Becker, J. B.
Hughes, F. L.
Mallon, E. A.
Shrom, R. E.

TEXAS

Dallas—Millwee, R. H.
Van Alstyne—Slaughter, J. M.

VERMONT

Wells River—Woodman, A. B.

VIRGINIA

Danville—Pritchett, C. B.
Norfolk—Spiegel, W.
Salem—Darden, J. C.

WASHINGTON

Chehalis—Johnson, W. R.
Ellensburg—Morris, M. J.
Seattle—Hoff, E.

WISCONSIN

Milwaukee—Leasum, C.

COMMISSIONS ACCEPTED, MEDICAL CORPS, U. S. ARMY

Previous lists published in The Journal, June 1, 22 and 29, July 13, 20 and 27, August 3, 10, 17, 24 and 31, September 7.

ALABAMA

Gadsden—Bass, H. W.
Mobile—Schwarz, J.
Winthrop, G. J.
Montgomery—Burke, R. P.
Phill Campbell—Ford, L. H.

ARKANSAS

Center Ridge—Halbrook, J. F.
Little Rock—Overstreet, W. C.
Rogers, F. O.

CALIFORNIA

Brea—Charleston, V. C.
Hollister—O'Bannon, R. W.
Long Beach—Hamman, A. F.
Los Angeles—Baker, C. D.
Mulvehill, W. W.
Walters, C. M. C.
Modesto—Falk, E. V.
Montebello—Trewhella, J. S.
Pasadena—Murray, H. W.
Pomona—Swearingen, F. C.
San Francisco—Bruman, A. K.
Sunnyvale—Barry, R. K.
Taft—Galehouse, F. C.

COLORADO

Denver—Simon, S.
Fort Collins—Brownell, W. F.
Rifle—Smith, A. E.
Wellington—Gleason, R. L.

CONNECTICUT

Bridgeport—Maxwell, I. A.
New Haven—Burke, W. P.

FLORIDA

Gainesville—Rosborough, W. F.
Hollandale—Thomas, W. R.
Lee—Mickler, W. S.

GEORGIA

Greensboro—Adams, E. G.
LaGrange—Morgan, D. E.
Macon—Walker, D. D.
Milltown—Burch, R. N.
Rome—Chandler, J. L.
Statesboro—Mooney, A. J.

IDAHO

Peck—Lyle, J. M.

ILLINOIS

Barry—Beaver, C. E.
Chicago—Beers, B. R.
Calhoun, W. H.
Culver, H.
Devine, E. J.
Dowson, A. W.
Falls, F. H.
Lyons, P. D.
Rubovits, W. H.
Stevenson, W. W.
Cooksville—Swinehart, B. O.
Dawson—Mayes, W. E. G.

INDIANA

Burlington—Quinn, C. E.
Foutanet—Newlin, E. O.
Fort Branch—Stephens, O. C.
Fort Wayne—Underwood, E. H.
Indianapolis—Habich, C.
Pettijohn, B. B.
Knox—Bell, H. L.
Lafayette—Swezey, H. N.
Peru—McDowell, M. A.
Tangier—Isaacs, H. H.

IOWA

Mystic—Fenton, W. J.
Shenandoah—Brush, M. O.
Troy—Prentice, G. L.

KANSAS

Coldwater—Ireland, E. M.
Emporia—Eckdall, F. A.
Sterling—Knowles, H. P.
Topeka—Allen, G. H.
Whitewater—Nossaman, A. H.

KENTUCKY

Elkton—Weathers, E. W.
Lexington—Busby, E. L.
Vallandingham, J. L.

MAINE

Deer Isle—Clark, R. W.
Foxcroft—Hall, C. C.

MASSACHUSETTS

Boston—Leary, A. J.
McCormack, J. S.
Sanborn, J. W.
Walker, W. W.
Cambridge—Chase, D. E.

MICHIGAN

Bay City—Urmston, P. R.
Benton Harbor—Burrell, H. J.
Detroit—Honhart, F. L.
Lindsay, W. L.
Lovering, W. J.
Robinson, W. H.
Young, G. R.
Fostoria—Johnson, O. G.
Freesoil—Spencer, C. M.
Grand Rapids—Brotherhood, J. S.
Iron River—Seely, M. S.
Port Huron—Kesl, G. M.

MINNESOTA

Canby—Holmberg, L. J.
Duluth—Kuth, J. R.
Minneapolis—Benjamin, A. E.
St. Paul—Klein, H. N.

MISSISSIPPI

Moorhead—Hill, J. M.

MISSOURI

Cole Camp—Van Allen, J. P.
Excelsior Springs—Baird, J. E.
Joplin—Royer, D. J.
Kansas City—Outland, J. H.
Stadler, S. A.
Wyatt, T. E.
Kearney—Milligan, R. H.
Mexico—Harrison, J. F.
Jolley, J. F.
Poplar Bluff—Oxford, S. E.
Salisbury—Morey, O. T.
St. Louis—Rotter, J. C.

MONTANA

Billings—Thuerer, E. W.
Great Falls—Frizzell, R. R.

NEBRASKA

David City—Burdick, H. E.
Franklin—Smith, H. C.
Lincoln—Snipes, J. J.
Murray—Gilmore, G. H.

NEW HAMPSHIRE

Milton—Buckley, J. J.
Nashua—McLaughlin, P. J.

NEW JERSEY

Hoboken—Friedman, A.
Newark—Mikels, B. M.
Reich, A. L.

NEW YORK

Brooklyn—Fettes, D. S.
Law, D. E.
Wittenberg, J.
Buffalo—Arthurs, G. W.
Nairn, B. R.
Zielinski, W. E.
Lyons—Finigan, J. J.
New York—Mintz, M. E.
Rochester—Richman, R. D.

NORTH CAROLINA

Greensboro—Roberson, G. B.
Readsville—Abernethy, M. B.

OHIO

Ashville—Stout, J. O.
Cleveland—Garvin, J. A.
Shipley, M. H.
Dayton—Peters, A. O.
[illegible]
[illegible]
[illegible], O. P.
Norwood—Eagon, S. E.
Parkman—Heeley, J. A.
Toledo—Hunter, I. E.
Urbana—Moore, D. H.

OKLAHOMA

Berlin—Clohesy, T. T.
Chickasha—Downey, D. S.
Cloudchief—Baker, B. W.
Tecumseh—Goodrich, E. E.

PENNSYLVANIA

Bristoria—Coen, J. A.
Freeport—Rogers, C. A.
Hepburnville—Waltz, A. D.
Joffre—Scott, W. L.
Kirkwood—Ferguson, T. R.
[illegible]
[illegible], C. L.
[illegible] G.
[illegible] L.
McKee, C. E.
Ohlman, I. L.
Stuart, L. H.
Williamsport—Logue, J. G.

RHODE ISLAND

Providence—Coughlin, F. A.

SOUTH CAROLINA

Orangeburg—Shecut, L. C.

SOUTH DAKOTA

Aberdeen—Johnston, M. C.
Murdy, R. B. C.
Terry—Hodges, V. R.

TENNESSEE

Dukedom—Jones, D. L.
Nashville—Thorp, M.

TEXAS

Bronte—Blanton, A. G.
Celina—Hailey, E. L.
Coleman—Lynch, T. P.
Dallas—Tomkies, J. S.
El Paso—Lamb, G. C.
Houston—Greer, A. E.
Jonesboro—Crawford, C. H.
San Antonio—Edwards, T. W.
Spur—Moore, W. R.
Sulphur Springs—Long, W. F.
Tahoka—McCoy, J. E.
Tyler—Smith, L. E.
Walde—Carroll, J. D.
Yoakum—Dufner, C. T.

UTAH

Magna—Musser, L. P.
Payson—Curtis, A. L.

VERMONT

Burlington—Courtney, J. W.

VIRGINIA

Clifton Forge—Wells, E. D.

WASHINGTON

[illegible] W. D.
[illegible]
[illegible] A.

WEST VIRGINIA

Warwood—Abersold, G. W.

WISCONSIN

Abrams—Faulds, R. C.
Dotyville—McCabe, P. G.
[illegible] W. O.
[illegible] C.
[illegible] H. J.
McCabe, H.
Oshkosh—Bickel, E. F.
Wausau—Thielke, G. A.

WYOMING

Lander—Cooper, A. H.

ORDERS TO OFFICERS OF THE MEDICAL CORPS, U. S. ARMY

Alabama

To Camp Shelby, Miss., base hospital, Lieut. R. P. BURKE, Montgomery.

Arizona

To Plattsburg Barracks, N. Y., from Camp Upton, Capt. L. P. KAULL, Jerome.

California

To Boston, Mass., Harvard Graduate School of Medicine, for instruction, from Camp Bowie, Lieut. O. W. BUTLER, Los Angeles.

To Camp Cody, N. M., base hospital, Capt. A. C. BRUMAN, San Francisco.

To Camp Crane, Pa., from Fort Oglethorpe, Capt. H. M. GRIFFITH, Pasadena.

To Camp Custer, Mich., from Southeastern Department, Major A. C. MAGEE, San Diego.

To Camp Dix, N. J., base hospital, from Hoboken, Capt. C. L. McCLISH, Los Angeles.

To Camp Jackson, S. C., base hospital, from Fort Oglethorpe, Capt. J. EAVES, San Francisco.

To Camp Kearney, Calif., Lieut. T. J. NOLAN, San Francisco.

To Fort McDowell, Calif., from Camp Fremont, Major O. ANDERSON, Ocean Park.

To San Francisco, Calif., Letterman General Hospital, Capt. W. P. BURKE, Redlands.

Colorado

To Fort Riley for instruction, Lieut. R. F. SHELDON, Ouray.

Connecticut

To Camp Custer, Mich., Lieut. A. D. MARSH, Hampton; from Camp Sherman, Capt. J. E. HUTCHINSON, Hartford.

To Camp Wadsworth, S. C., base hospital, Lieut. S. R. SMITH, Bridgeport.

District of Columbia

To Camp Bowie, Texas, from Fort Oglethorpe, Lieut. A. F. ROCHE, Washington.

To Camp McClellan, Ala., Lieut. W. P. KIRBY, Washington.

To Walter Reed General Hospital, D. C., from the Surgeon General's Office, Col. E. R. SCHREINER.

To Washington, D. C., Surgeon-General's Office, from Walter Reed General Hospital, Col. W. F. TRUBY.

Florida

To Camp Joseph E. Johnston, Fla., from Fort Oglethorpe, Lieut. R. D. TOMPKINS, Jasper.

To Camp Shelby, Miss., base hospital, Capt. F. J. BOWEN, Jacksonville

Georgia

To Camp Custer, Mich., Lieut. JOSEPH O. KINCAID, Atlanta.

To Camp Dix, N. J., base hospital, from Fort Oglethorpe, Capt. J. K. TRAIN, Savannah.

To Camp McClellan, Ala., Lieut. L. SMITH, Milltown. Base hospital, Leiut. W. M. FOLKS, Waycross.

To Newport News, Va., Capt. R. V. HARRIS, Savannah.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to Camp Devens, Mass.*, base hospital, Lieut. R. L. RHODES, Augusta.

Illinois

To Camp A. A. Humphreys, Va., from Fort Oglethorpe, Lieut. H. S. EDSON, Chicago.

To Camp Dodge, Iowa, base hospital Lieut. E. W. BODMAN, Winnetka; from Fort Riley; Lieut. E. A. CORCORAN, Chicago.

To Camp Grant, Ill., Capt. W. L. PENNIMAN, Normal; Lieut. J. C. QUITMEYER, Chicago.

To Camp Hancock, Ga., base hospital, Lieuts. O. E. CARSON, Alton; E. L. CAVENCE, Champaign.

To Camp Lee, Va., base hospital, from Fort Oglethorpe, Capt. C. H. ZOLLER, Litchfield.

To Fort Oglethorpe for instruction, Capt. H. JACKSON, Chicago.

To Newport News, Va., Lieut. L. H. MILLER, Pana.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to Camp Meade, Md.*, Lieut. W. D. RYAN, Philo.

Indiana

To Army Medical School for instruction, from Camp Jackson, Lieut. E. H. HARE, Indianapolis.

To Camp Custer, Mich., from Camp Sherman, Capt. P. C. TRAVER, South Bend.

To Camp Grant, Ill., Lieuts. L. N. GEISINGER, Auburn; H. V. BLOSSER, Fort Wayne.

To Camp Sevier, S. C., base hospital, Capt. R. G. HENDRICKS, Indianapolis.

To Camp Wadsworth, S. C., base hospital, Lieut. L. O. SHOLTY, Wabash.

To Camp Zachary Taylor, Ky., Lieut. W. F. DUNHAM, Kempton; from Camp Grant, Capt. J. R. DILLINGER, French Lick.

To Newport News, Va., Lieuts. C. HABICH, Indianapolis; W. A. OHMART, North Manchester; B. W. HARRIS, Uniondale.

To Rochester, Minn., Mayo Clinic, for instruction, and on completion *to Camp Custer, Mich.*, base hospital, Lieut. R. C. OTTINGER, Indianapolis.

Iowa

To Camp Bowie, Texas, base hospital, Lieut. C. E. MAGOUN, Sioux City.

To Camp Custer, Mich., Lieut. J. W. FONDA, Council Bluffs.

To Camp Grant, Ill., Capt. C. R. ARMENTROUT, Keokuk; Lieut. F. R. MENAGH, Denison.

To Camp Pike, Ark., base hospital, Lieut. G. D. SCHOONMAKER, Philadelphia.

To Camp Shelby, Miss., base hospital, Capt. C. A. KATHERMAN, Sioux City.

To Fort Oglethorpe for instruction, Capt. C. W. MEHLOP, Dubuque.

To Fort Worth, Texas, Carruthers Field, as flight surgeon, from Mineola, Capt. O. J. BLESSIN, Postville.

To Hoboken, N. J., Lieut. G. GOULD, Iowa City.

The following order has been revoked: *To Camp McClellan, Ala.*, from Eastern Department, Capt. S. A. O'BRIEN, Mason City.

Kansas

To Cambridge, Mass., Lieut. L. G. EASTMAN, Auburndale.

To Camp Bowie, Texas, base hospital, Lieut. R. S. PICKLER, Beloit.

To Fort Oglethorpe for instruction, Capt. E. D. ELBRIGHT, Wichita.

To Fort Riley, base hospital, Capt. F. J. WALKER, Wichita.

To Fort Sam Houston, Lieut. S. H. KELLAN, Cherryvale.

Kentucky

To Camp Gordon, Ga., base hospital, Lieut. D. T. ADAMS, Covington.

To Camp McClellan, Ala., Capt. G. W. THRELKELD, Prospect.

To Fort Oglethorpe for instruction, Capt. C. T. Wolfe, Louisville.

To Fort Snelling, Minn., from Army Medical School, Lieut. D. B. ROACH, Cadiz.

Maine

To Camp Upton, N. Y., Capt. A. H. DAMON, Limestone.

To Washington, D. C., for conference, and on completion *to Camp Sherman, Ohio,* to examine the command for nervous and mental diseases, from Camp Wadsworth, Major F. E. LESLIE, Andover.

Maryland

To Camp Upton, N. Y., Lieut. E. M. SULLIVAN, Westminster.

To Camp Zachary Taylor, Ky., base hospital, from Camp Meade, Capt. T. R. PAYNE, Corbett.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to Camp Upton, N. Y.,* Lieut. F. E. ROBERTS, Baltimore.

The following order has been revoked: *To Camp Dodge, Iowa,* base hospital, Lieut. J. K. ORMOND, Baltimore.

Massachusetts

To Camp Devens, Mass., base hospital, from Fort Oglethorpe, Major A. W. GEORGE, Boston.

To Camp Lee, Va., base hospital, Capt. A. M. DODGE, Boston.

To Camp Upton, N. Y., base hospital, Capt. W. G. DROUIN, Holyoke.

To Fort Oglethorpe, evacuation hospital, from Boston, Lieut. J. H. SHORTELL, Boston. For instruction, Lieut. T. F. WHEELDON, Boston.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to Camp Hancock, Ga.*, base hospital, Capt. F. W. GAY, Malden.

To Syracuse, N. Y., as tuberculosis examiner, from New Haven, Lieut. E. H. GANLEY, Methuen.

The following order has been revoked: *To Camp Dix, N. J.*, Lieut. W. F. BRADY, Holyoke.

Michigan

To Camp McClellan, Ala., base hospital, Lieut. W. N. SIMONS, Detroit.

To Camp Sherman, Ohio, base hospital, Lieut. M. S. SEELY, Iron River.

To Camp Wadsworth, S. C., from Camp Zachary Taylor, Lieut. A. J. RADZINSKI, Detroit.

To Fort Des Moines, Iowa, base hospital, Capt. W. K. REXFORD, Detroit; Lieut. D. H. McRAE, Detroit.

To Fort Oglethorpe, evacuation hospital, from Camp Zachary Taylor, Capt. J. A. ELLIOTT, Battle Creek.

Minnesota

To Boston, Mass., Harvard Graduate School of Medicine, for instruction, from Camp A. A. Humphreys, Lieut. M. A. DESMOND, Glenwood.

To Camp Grant, Ill., Capt. E. L. HALL, Russell.

To Cincinnati, Ohio, from Fort Riley, Lieut. A. A. TOFTE, Pine City.

To Fort Oglethorpe, evacuation hospital, from Camp Sevier, Capt. B. A. KAMP, Albert Lea.

Mississippi

To Camp Custer, Mich., from Camp Sherman, Major R. C. ELMORE, Durant.

To Camp McClellan, Ala., Lieut. L. T. FERRELL, Hazelhurst.

To Newport News, Va., Lieut. J. S. GIBSON, Crystal Springs.

Missouri

To Camp Beauregard, La., base hospital, Lieut. J. P. JOLLEY, Mexico.

To Camp Bowie, Texas, base hospital, Lieut. J. R. LIONBERGER, St. Louis.

To Camp Custer, Mich., base hospital, from Fort Riley, Capt. H. S. ROWLETT, Maryville.

To Camp Pike, Ark., base hospital, Capt. J. W. MacDONALD, Clayton.

To Camp Shelby, Miss., base hospital, Lieut. G. C. LYTTLE, St. Louis.

To Fort Oglethorpe, evacuation hospital, from New York, Lieut. O. B. ZEINERT, St. Louis.

To Fort Worth, Texas, from Sacramento, Capt. N. W. SHARPE, St. Louis.

To Manhattan, Kan., State Agricultural College, to examine and give medical attention to drafted men, Capt. F. M. O'KELLEY, Sikeston.

To New Orleans, La., Tulane University, to examine and give medical attention to drafted men, from Fort Riley, Lieut. S. S. STEWART, St. Louis.

To Rochester, Minn., Mayo Clinic, for instruction, and on completion *to his proper station,* from Camp Pike, Capt. A. S. J. SMITH, St. Joseph.

To Syracuse, N. Y., as tuberculosis examiner, from New Haven, Lieut. J. L. MARDER, St. Louis.

Montana

To Camp Kearney, Calif., from Camp Lewis, Capt. T. W. WELSH, Roundup.

To Rochester, Minn., Mayo Clinic, for instruction, and on completion *to his proper station,* from Fort Sill, Lieut. J. J. TOBINSKI, Missoula.

Nebraska

To Camp Custer, Mich., from Camp Sherman, Capt. O. Martin, Omaha.

To Camp Meade, Md., as tuberculosis examiner, from Camp Sheridan, Lieut. E. O. WILSON, Madison.

To Fort Des Moines, Iowa, base hospital, Capt. J. R. BLACKMAN, Hastings.

To Fort Riley for instruction, Lieut. E. G. JOHNSON, Grand Island.

To Fort Sam Houston, Texas, Lieut. C. W. JEFFREY, Oceola.

To Washington, D. C., for instructions, from Fort Oglethorpe, Capt. L. CRUMMER, Omaha.

New Hampshire

To Camp Hancock, Ga., base hospital, Capt. L. H. COGSWELL, Warner.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to Camp McClellan, Ala.,* base hospital, Lieut. G. S. FOSTER, Manchester.

New Jersey

To Camp Hancock, Ga., base hospital, from Camp Meade, Lieut. M. B. FINNERAN, Jersey City.

To Camp Wheeler, Ga., base hospital, Lieut. A. E. OLPP, West Hoboken.

To Camp Zachary Taylor, Ky., as orthopedic surgeon, from Fort Oglethorpe, Lieut. J. L. SHOEMAKER, Camden.

To Fort Oglethorpe for instruction, Lieut. J. C. HUGHES, Bayonne.

To Fort Worth, Texas, Taliaferro Field, as flight surgeon, from Mineola, Capt. A. C. ZEHNDER, Newark.

To Syracuse, N. Y., as tuberculosis examiner, from New Haven, Lieut. G. E. HARHEN, Newark.

The following order has been revoked: *To Camp Zachary Taylor, Ky.*, as orthopedic surgeon, from Fort Oglethorpe, Lieut. T. L. CALDRONEY, Paterson.

New York

To Camp Custer, Mich., from Camp Sherman, Capt. J. J. CORBETT, Syracuse.

To Camp Dix, N. J., base hospital, Capt. J. A. COX, Albany.

To Camp Greene, N. C., base hospital, Capt. E. W. KENNEDY, Rochester.

To Camp McClellan, Ala., Lieuts. E. M. TENCH, Buffalo; H. HERMAN, New York.

To Camp Sevier, S. C., base hospital, Lieut. L. D. ROCHE, New York.

To Cape May, N. J., Lieut. W. A. KRIEGER, Poughkeepsie.

To Fort Oglethorpe for consultation with commanding officer and the chief of the surgical service at U. S. Army General Hospital, and on completion *to his proper station* at Washington, Lieut.-Col. C. H. PECK, New York.

To Fort McPherson, Ga., from New Haven, Capt. R. E. PLUNKETT, Whitehall.

To Hampton, Va., Langley Field, as flight surgeon, from Arcadia, Fla., Capt. W. W. GILL, New York.

To Houston, Texas, Ellington Field, as assistant to flight surgeon, from Mineola, Capt. J. D. GULICK, Schenecindy.

To Newport News, Va., Lieut. L. GOLDFARB, Brooklyn.

To Rockefeller Institute for instruction in the treatment of infected wounds and on completion *to Camp Greene, N. C.*, base hospital, Capt. G. H. REICHERS, Brooklyn. On completion *to Camp Lee, Va.*, base hospital, Capt. E. F. SIBLEY, Kingston. On completion *to Camp Meade, Md.*, base hospital, Lieuts. M. BELLIN, Albany; C. V. O'BRIEN, Brooklyn.

The following order has been revoked: *To Camp Greene, N. C.*, to examine the command for nervous and mental diseases, from Camp A. A. Humphreys, Capt. E. HOLLEY, Brooklyn.

North Carolina

To Camp McClellan, Ala., from Camp Lee, Lieut. H. W. TIDMARSH, Randleman.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to Camp Dix, N. J.*, base hospital, Capt. A. W. MOORE, Charlotte.

North Dakota

To Camp Dodge, Iowa, base hospital, Capt. T. O. E. MOELLER, Devils Lake.

To Fort Des Moines, Iowa, base hospital, Lieut. A. F. BRATRUD, Grand Forks.

Ohio

To Army Medical School for instruction, from Garden City, Lieut. D. H. MACDONALD, Cleveland.

To Camp Crane, Pa., from New York, Capt. F. J. BIDWELL, Toledo.

To Camp Custer, Mich., Lieuts. E. J. CURTISS, Lima; R. C. FARRIS, Porum.

To Camp Greene, N. C., base hospital, Lieut. C. G. DEW, Nelsonville.

To Camp Kelly, Texas, as assistant to flight surgeon, from Mineola, Capt. M. H. URNER, Cincinnati.

To Fort Oglethorpe, evacuation hospital, from Camp Sevier, Lieut. J. M. McGEORGE, Salem; from Camp Sheridan, Capt. L. C. COSGROVE, Swanton.

To Newport News, Va., Lieuts. H. B. CLOUD, Canton; G. F. BOWMAN, Toledo.

To Syracuse, N. Y., as tuberculosis examiner, from New Haven, Capt. C. A. FALLER, Cincinnati.

Oklahoma

To Camp Abraham Eustis, Va., as assistant to camp surgeon, from Fort Oglethorpe, Lieut. S. B. BELLINGER, McAlester.

To Camp Shelby, Miss., from Camp Bowie, Capt. J. G. HARRIS, Muskogee.

Oregon

To Camp Kearney, Calif., from Fort Riley, Lieut. J. O. VAN WINKLE, Jefferson.

Pennsylvania

To Army Medical School for instruction, from Camp Wheeler, Lieut. B. F. FULTON, Pittsburgh; from Camp Zachary Taylor, Lieut. J. K. ANDERSON, Pittsburgh.

To Camp Custer, Mich., Lieut. H. M. KUEHNER, Philadelphia.

To Camp Gordon, base hospital, Lieut. J. W. BURKETT, Moon Run.

To Camp Greene, N. C., base hospital, Lieut. J. H. HATWELL, Philadelphia.

To Camp Hancock, Ga., base hospital, Lieut. D. BEVERIDGE, Washington.

To Camp McClellan, Ala., Capt. R. REESER, Columbia.

To Camp Upton, N. Y., Capt. A. W. SHERRILL, Pittsburgh; Lieuts. W. W. LIVINGSTON, Dunlo; E. WEISS, Johnsonburg.

To Fort Oglethorpe for instruction, Lieut. A. S. SICKMAN, Lock.

To Newport News, Va., Lieuts. R. S. ALSTON, Philadelphia; W. J. FETHEROLF, Steinsville.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on [illegible] *C.*, base hospital, Lieut. H. C. WALLA[illegible] *to Camp Meade, Md.*, base hospital, Ca[illegible]rgh.

To Syracuse, N. Y., as tuberculosis examiner, from New Haven, Capt. C. M. MALONE, Shamokin.

To Williamsbridge, N. Y., from Camp Devens, Capt. J. S. MACKRELL, Pittsburgh; from Camp Dix, Capt. C. A. STILLWAGON, Pittsburgh.

Porto Rico

To Camp Las Casas, P. R., Lieut. E. L. C. PURCELL, Ponce; from Camp Meade, Lieut. J. H. FONT, Barranquitas.

South Dakota

To Rochester, Minn., Mayo Clinic, for instruction, and on completion *to Camp Custer, Mich.*, base hospital, Capt. W. A. BATES, Northville.

Tennessee

To Camp Lee, Va., base hospital, from Fort Oglethorpe, Capt. D. R. PICKENS, Nashville.

To Camp McClellan, Ala., Lieut. W. T. HARVELL, Arlington.

To Camp Pike, Ark., base hospital, Capt. P. DEWITT, Nashville; Lieut. O. F. WALKER, Memphis.

To Fort Oglethorpe, evacuation hospital, from Fort Screven, Capt. C. D. BLASSINGAME, Memphis.

To Newport News, Va., Lieut. I. N. HUDKINS, Bradford.

The following order has been revoked: *To Camp Pike, Ark.*, from Fort Riley, Lieut. H. O. ANDERSON, Williamsport.

Texas

To Camp Beauregard, La., from Camp Cody, Capt. T. C. BROOKS, Bay City.

To Camp Bowie, Texas, base hospital, Lieut. T. C. GILBERT, Dallas.

To Camp Logan, Texas, as assistant to camp surgeon, from Camp Bowie, Lieut. H. B. SMITH, Dallas.

To Camp MacArthur, Texas, base hospital, Lieut. J. C. FALVEY, Numble.

To Camp Travis, Texas, base hospital, from Southern Department, Lieut. T. K. JONES, Henrietta.

To Fort Oglethorpe for instruction, Capt. G. D. GRIMES, Houston; T. D. FRIZZELL, Quanah.

To Newport News, Va., Lieut. A. J. TURNER, Beeville.

Utah

To Camp Bowie, Texas, base hospital, Capt. H. LYNCH, Salt Lake City.

Vermont

To Camp Custer, Mich., Lieut. E. J. CRAY, Brandon.

To Fort Schuyler, N. Y., from Camp Lee, Capt. W. E. LAZELL, Barre.

To Fort Totten, N. Y., from Rockefeller Institute, Capt. J. H. COLE, Bennington.

Virginia

To Camp Wheeler, Ga., base hospital, Capt. J. W. WHITE, Norfolk.

To Hoboken, N. J., evacuation hospital, Major B. L. HILLSMAN, Richmond.

To Newport News, Va., Lieut. J. L. WRIGHT, Keezletown.

Washington

To Camp Lewis, Wash., base hospital, Lieut. J. H. CRAMPTON, Spokane.

West Virginia

To Camp McClellan, Ala., Capt. W. W. KOINER, Sullivan.

To Fort Oglethorpe for instruction, Capt. J. D. SCHMIED, New Martinsville.

Wisconsin

To Boston, Mass., Harvard Graduate School of Medicine, for instruction in orthopedics, from Camp Devens, Lieut. H. E. BUNDY, Milwaukee.

To Camp Grant, Ill., Capts. R. C. FAULDS, Abrams; R. P. POTTER, Marshfield; Lieuts. F. P. MEIS, Gilman; E. H. TOWNSEND, JR., New Lisbon; T. J. SHEEHY, Tomah.

To Camp Sherman, Ohio, base hospital, Lieut. W. J. WINNEMANN, Athens.

To Rochester, Minn., Mayo Clinic, for instruction, and on completion *to Fort Riley*, base hospital, Lieut. H. C. MAURER, Beloit.

To Williamsbridge, N. Y., from Camp Dix, Lieut. T. C. H. ABELMANN, Watertown.

COMMISSIONS OFFERED AND ORDERED TO DUTY ON ACCEPTANCE

Alabama

To Fort Oglethorpe for instruction, Capt. J. H. EDMONSON, Birmingham; Lieut. L. M. WALKER, Plantersville.

Arizona

To Fort Riley for instruction, Lieut. E. J. GOTTHELF, Tucson.

Arkansas

To Fort Oglethorpe for instruction, Lieuts. O. HOWTON, Osceola; J. D. MITCHELL, Uniontown.

To Fort Riley for instruction, Lieuts. C. W. McLAIN, Gurdon; H. D. BOGART, Marianna.

To Washington, D. C., Elizabeth's Hospital, for instruction, Capt. R. F. DARNALL, Little Rock.

California

To Camp Fremont, Calif., base hospital, Lieut. J. MONTELCONE, Los Angeles.

To Fort Oglethorpe for instruction, Capts. H. L. PARISH, Oakland; F. W. BURNS, Pomona; G. L. MARION, San Francisco.

To Fort Riley for instruction, Capt. F. C. FERRY, Los Angeles; Lieuts. H. B. OSBORN, Fillmore; C. T. BULLARD, King City; W. C. DUNCAN, Los Angeles.

Colorado

To Fort Oglethorpe for instruction, Lieut. E. K. SHELTON, Antonio.

To Fort Riley for instruction, Capts. D. O. NORTON, Fort Collins; J. ATCHESON, JR., Idaho Springs; Lieuts. W. K. HILLS, Colorado Springs; B. F. BLOTZ, Rocky Ford.

Connecticut

To Fort Oglethorpe for instruction, Major L. W. BACON, New Haven; Capts. C. I. PAGE, Litchfield; P. H. ROGERS, West Haven.

To New Haven, Conn., Yale Army Laboratory School, for instruction, Capt. E. H. BLAIR, Hartford.

Delaware

To Fort Oglethorpe for instruction, Capt. J. P. LOFLAND, Milford.

District of Columbia

To Camp Sherman, Ohio, base hospital, Lieut. T. A. POOLE, Washington.

To Fort Oglethorpe for instruction, Capt. P. E. LARKIN, Washington.

Georgia

To Fort Oglethorpe for instruction, Capts. T. R. AYCOCK, Monroe; J. T. KING, Quitman; Lieuts. G. T. HENDRY, Blackshear; W. HUTCHINS, Buford; M. MASHBURN, Cumming; W. M. GERTMAN, Hazlehurst; B. E. HORTON, McDonough; W. P. ALLEN, Woodbury.

Idaho

To Camp Kearney, Calif., to examine the command for nervous and mental diseases, Capt. C. R. LOWE, Boise City.

To Camp Lewis, Wash., for instruction, Capt. D. L. BLEVINS, Idaho Falls.

To Fort Riley for instruction, Lieut. C. K. HENKLE, Troy.

Illinois

To Camp Zachary Taylor, Ky., to examine the command for nervous and mental diseases, Lieuts. T. G. CHARLES, Beardstown; E. C. PRATT, Upper Alton.

To Fort Oglethorpe for instruction, Major J. L. PORTER, Chicago; Capts. A. F. BECHTOLD, Belleville; W. C. MITCHELL, Bradford; J. R. MACNAMARA, Chicago; A. F. KAESER, Highland; L. T. RHOADS, Lincoln; H. H. SHEETS, Oregon; A. G. GUMM, Paris; E. P. STAFF, Ramsey; Lieuts. J. P. LONG, Astoria; C. R. BRIGHAM, Brookville; L. C. MILLER, Champaign; J. A. KROPACEK, Chicago; J. A. SULLIVAN, East St. Louis; P. T. DIAMOND, Evanston; J. B. ROBERTS, Kansas; C. L. CASEY, Kewanee; W. L. COTTINGHAM, Paxton; E. E. BOND, Stronghurst; H. C. HOUSER, Westfield.

To Fort Riley, Lieuts. P. F. SHAFFNER, Chicago. For instruction, Lieut. F. C. FINK, Pleasant Plains. *To examine the command* for nervous and mental d[illegible] Capt. G. W. BROCK, Atlanta.

To [illegible] S. Army General Hospital, Lieut. A. W. SCHM[illegible] Army Laboratory School, for instruction, Lieuts. [illegible], Nashville; B. RUNNELS, Milledgeville; C. B. [illegible], West Chicago.

Indiana

To Fort Oglethorpe for instruction, Capts. E. G. COVERDALE, Decatur; J. T. HAZEL, Freedom; F. M. HARTSOOK, Freeland Park; S. H. CARAWAY, S. O. LEAK, Indianapolis; A. T. CUSTER, Linton; J. L. GILBERT, Logansport; F. A. PRIEST, Marion; C. C. COLLINS, Roachdale; C. D. EHRMAN, Rockport; J. B. MAPLE, Shelburn; H. W. DALE, West Lebanon; Lieuts. R. W. BROOKIE, Converse; R. R. POLLOM, Darlington; F. J. McMICHAEL, Gary; J. F. CASPER, Jasper; N. L. MEDCALF, Lamar; W. F. CRAFT, Linton; M. F. PARRISH, Monroe; H. W. TAYLOR, Rochester.

To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieut. A. C. WILLIAMS, Reynolds.

To Walter Reed General Hospital, D. C., Capt. E. J. LENT, South Bend.

Iowa

To Fort Oglethorpe for instruction, Capts. S. E. LINCOLN, Des Moines; G. L. ATKINS, Superior; Lieuts. L. J. LINEHAN, Dubuque; H. P. MAHAN, Ellsworth; H. E. MIDDLETOWN, Lake City; W. A. HENNEGER, La Motte; W. E. CODY, Merrill; H. RISK, Oelwein.

To Fort Riley for instruction, Capts. A. C. RHINE, Hampton; J. G. RYAN, New Sharon; Lieuts. C. H. BURKE, Algona; M. E. DINGMAN, Urbana.

Kansas

To Fort Oglethorpe for instruction, Capts. O. C. BAIRD, S. STEELE, Chanute; C. D. BLAKE, Ellis; H. G. SHELLY, Mulvane; W. F. OSBURN, Parsons; W. H. CARTER, Lieut. A. E. GARDNER, Wichita.

To Fort Riley for instruction, Lieuts. C. J. MILLS, Lebo; G. D. RUTH, Moundridge; J. B. BLADES, Randall.

Kentucky

To Camp Jackson, S. C., base hospital, Major E. B. BRADLEY, Lexington.

To Fort Oglethorpe for instruction, Capts. O. H. SHIVELY, Campbellsville; E. B. PENDLETON, Hartford; F. W. HINKLE, Louisville; Lieuts. J. L. RUSSELL, Adairville; J. M. PREWITT, Covington; M. C. BAKER, Louisville.

To New Haven, Conn., U. S. Army General Hospital, Lieut. G. H. Wells, Glasgow.

Louisiana

To Fort Oglethorpe for instruction, Capt. A. H. GLADDEN, Monroe.

Maine

To Fort Oglethorpe for instruction, Capt. C. M. ROBINSON, Portland; Lieut. R. J. MORIN, Lewiston.

To New Haven, Conn., U. S. Army General Hospital, Lieut. E. B. FRISBEE, Bridgton.

Maryland

To Fort Oglethorpe for instruction, Capt. J. W. COLE, Lieut. J. A. SKLADOWSKY, Baltimore.

Massachusetts

To Edgewood Arsenal, Md., Lieut. W. F. MAHONEY, Westboro.

To Fort Oglethorpe for instruction, Major H. ROBB, Winchester; Capts. J. F. CALLAHAN, Brockton; D. L. MARTIN, Dorchester; W. E. HUNT, Malden; E. W. BURT, Westport; W. G. CURTIS, Wollaston; Lieuts. N. K. FORHAM, Billerica; J. H. GOODING, Boston; R. E. ANDREWS, Cambridge; W. M. COLLINS, Lowell; E. W. SMITH, Newton; O. L. DASCOMBE, Waltham; H. W. TRASK, West Boylston; H. L. JACKSON, West Springfield; T. M. PROCTOR, Wrentham.

To Washington, D. C., St. Elizabeth's Hospital, for instruction, Capt. W. T. GARFIELD, Cambridge.

Michigan

To Fort Oglethorpe for instruction, Capts. I. S. MORRIS, J. ROSENTHAL, *Detroit*; W. H. FORCE, Ludington; G. A. HOLLIDAY, Traverse City; Lieuts. W. I. SEARLES, Ann Arbor; J. H. MULLER, Grand Rapids.

To New York, Neurological Institute, for instruction, Capt. R. C. STONE, Battle Creek.

Minnesota

To Camp Grant, Ill., base hospital, Capt. E. BOECKMANN, St. Paul.

To Fort Oglethorpe for instruction, Capt. A. E. COMSTOCK, St. Paul; Lieut. T. ZISKIN, Minneapolis.

To Fort Riley for instruction, Capt. E. JAMIESON, Walnut Grove; Lieut. F. S. McKINNEY, Minneapolis.

Mississippi

To Fort Oglethorpe for instruction, Capt. C. E. SPENCER, Verona; Lieuts. F. P. TURNER, Cleveland.

Missouri

To Camp Sevier, S. C., base hospital, Capt. W. H. MINTON, St. Joseph.

To Fort Oglethorpe for instruction, Capts. T. G. ORR, Kansas City; J. A. HARTMANN, V. B. KIEFFER, H. B. MILLER, J. C. MURPHY, C. S. REHFELDT, St. Louis; H. G. SAVAGE, Warsaw; Lieuts. L. R. MONDAY, Richland; K. R. BARTUM, Sedalia; J. D. POE, St. Louis.

To Fort Riley for instruction, Capts. P. S. TATE, Farmington; R. G. LAMSON, Neosha; Lieuts. A. E. ALLDER, Cane Hill; W. R. SHAEFFER, Columbia; J. S. BOWERS, Granby; L. HURWITZ, Joplin; B. O. HARTWELL, Maysville; C. H. ALLEN, Odessa; F. E. DEAL, Slater.

To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieut. W. J. HUNT, St. Joseph.

Montana

To Fort Riley, base hospital, Capt. E. M. PORTER, Great Falls. For instruction, Capt. J. H. RIFFEY, Hedgesville; Lieuts. W. A. HULBUSH, Geraldine; J. E. FUHRER, Ronan.

Nebraska

To Camp Gordon, Ga., base hospital, Lieut. J. S. LEISURE, Ingleside.

To Fort Oglethorpe for instruction, Capts. F. P. DORSEY, Hartington; W. T. CARSON, Hastings; H. C. SUMNEY, Omaha; Lieut. W. H. CRUTCHER, Lincoln.

To Fort Riley for instruction, Lieuts. A. E. BRIX, Lexington; J. C. FOLLMANN, G. J. KADAVY, Omaha.

New Jersey

To Camp Hancock, Ga., Lieut. C. B. KEENEY, Summit.

To Fort Oglethorpe for instruction, Lieuts. J. E. DUFFY, Ridgefield Park; H. T. RICHARDSON, Trenton.

New Mexico

To Fort Oglethorpe for instruction, Lieut. W. F. GLASIER, Carlsbad.

To Fort Riley for instruction, Capt. H. G. WILLSON, Gallup; Lieut. E. J. HUBBARD, Dexter.

New York

To Camp Devens, Mass., base hospital, Capt. E. D. RUDDEROW, New York.

To Camp Jackson, S. C., base hospital, Major G. R. BUTLER, Brooklyn.

To Camp Meade, Md., *for instruction*, Capt. E. LONG, New York.

To Fort Oglethorpe for instruction, Major B. F. KNAUSE, Brooklyn; Capts. H. W. GISSEL, J. LOGUE, Brooklyn; M. J. BURSTEIN, New York; Lieuts. S. Z. SELLECK, Bath; C. A. BREITLING, Brooklyn; E. P. FORRESTEL, Buffalo; R. H. MAYHEW, Canaseraga; J. L. KINNER, Elmira; V. J. JACOBSOHN, Mineola; *C. E. FROATZ*, M. M. HOLZMAN, H. M. KOMAROFF, H. MICHAELIS, H. J. SCHWARTZ, New York; C. OVERTON, *White Plains*.

To Fort Riley for instruction, Lieut. S. L. SCIBETTA, Buffalo.

To New Haven, Conn., Yale Army Laboratory School, for instruction, Capt. A. E. LEACH, Mount Morris; Lieut. P. MOE, Jr., Katonah.

North Carolina

To Camp Sheridan, Ala., base hospital, Lieut. M. R. GIBSON, Raleigh.

Ohio

To Ann Arbor, Mich., psychopathic *hospital, for* intensive training, Lieut. C. W. IRISH, Barberton.

To Camp Shelby, Miss., Capt. C. W. McGAVRAN, Columbia.

To Fort Oglethorpe for instruction, Capts. H. C. LUCK, Cleveland; G. E. WINN, Defiance; H. E. DWIRE, *Nevada*; *H. PRIMM*, Ravenna; C. A. BURRITT, O. HASENCAMP, Toledo; R. L. CAMERON, Youngstown; Lieuts. J. W. H. BEACH, Arlington; C. W. KIRKLAND, *Bellaire*; E. SHELDON, Bloomdale; C. L. McDONALD, Cleveland; F. F. DAVIS, East Liverpool; W. D. MAAG, Frankfort; E. A. BECHTEL, Montpelier; G. F. BARNETT, Painesville; O. C. HENDERSON, Portland; A. R. KENT, Springfield; J. I. DAVIS, Wilmington; J. S. LEWIS, Jr., Youngstown.

Oklahoma

To Fort Oglethorpe for instruction, Lieuts. B. DAVIS, Cushing; F. F. JONES, Pawhuska.

To Fort Riley for instruction, Capt. W. B. HUDSON, Yale; Lieuts. J. J. JOHNSON, Bragg; R. H. SHERRILL, Broken Bow; O. G. BACON, Davidson; F. R. DOLSON, Faxon; A. M. McMAHAN, Hillsdale; *B. H. BURNETT*, Hulen; C. A. HOWELL, Manitou; C. W. ARRENDELL, Ponca City; B. C. HARRIS, Sapulpa; S. S. MOHRMAN, Tulsa.

Oregon

To Fort Riley for instruction, Lieut. R. W. WALTON, Salem.

Pennsylvania

To Ann Arbor, Mich., State Psychopathic Hospital, for intensive training, Lieut. J. F. NORRIS, Somerset.

To Camp Hancock, Ga., Capt. W. C. MAXWELL, Pittsburgh.

To Camp Wadsworth, S. C., Capt. E. H. SLOAN, Ben Avon.

To Fort Oglethorpe for instruction, Capts. J. M. GELWIX, Chambersburg; W. B. DENSLOW, G. H. WALKER, C. W. WIRTS, Pittsburgh; Lieuts. J. FLEITAS, Chestnut Hill; W. W. HOBSON, Dormond; E. H. THOMPSON, Frankfort; J. L. ARNOLD, Harrisburg; M. H. KUDLICH, Hazleton; G. E. HALYAMA, Jeannette; R. I. SAGERSON, Johnstown; W. N. ARMSTRONG, Lock Haven; I. O. *MAHR*, Loganton; S. R. W. McCUNE, New Castle; W. D. BARRY, Philadelphia; J. HODGKISS, C. C. LANG, Pittsburgh; A. P. HYDE, Sharon; P. C. BOORD, Silver Creek.

To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieuts. E. O. DAY, Philadelphia; G. W. RAMSEY, Washington.

South Carolina

To Fort Oglethorpe for instruction, Capt. H. L. SHAW, Fountain Inn; Lieuts. G. C. STUART, Eastover; C. E. HOUSTON, Florence.

Tennessee

To Camp Zachary Taylor, Ky., base hospital, Lieut. J. B. BLUE, Memphis.

To Fort Oglethorpe for instruction, Capts. W. N. LYNN, Knoxville; W. S. CLACK, Rockwood; Lieuts. N. W. KELLY, Covington; P. E. MARSH, Kingsport; S. BURCHART, Memphis; B. N. WHITE, Murfreesboro; T. A. WHITFIELD, Nashville.

Texas

To Camp Cody, N. M., base hospital, Capt. E. H. IRVIN, El Paso.

To Fort Oglethorpe for instruction, Capts. F. M. HALE, Ballinger; C. E. DURHAM, Hico; G. HAMILTON, Houston; *Lieuts. P. J.* FULLINGIM, Decatur; B. F. CLUTTER, El Paso; J. W. E. H. BECK, Texarkana; E. SMITH, Waco.

To Fort Riley for instruction, Lieut. O. HUFF, Castell.

Utah

To Camp Cody, N. M., base hospital, Capt. E. DORLAND, Devils Slide.

To Camp Fremont, Calif., base hospital, Capt. E. S. BUDGE, Logan.

To Fort Oglethorpe for instruction, Lieut. C. J. NEILSON, Salt Lake City.

To Fort Riley for instruction, Lieut. N. J. REES, Nephi.

Vermont

To Fort Oglethorpe for instruction, Capt. J. S. KING, St. Albans; Lieuts. J. R. GRIMES, Montpelier; M. P. STANLEY, White River Junction.

Virginia

To Fort Oglethorpe for instruction, Lieuts. W. C. ADKERSON, J. W. DEVINE, Lynchburg; V. B. HIRST, Purcelville; J. BEAR, Richmond.

Washington

To Camp Lewis, Wash., base hospital, Lieut. C. S. *PASCOE*, Tacoma.

To Fort Oglethorpe for instruction, Capt. U. M. LAUMAN, Randle.

West Virginia

To Camp Hancock, Ga., Capt. L. T. VINSON, Huntington.

To Fort Oglethorpe for instruction, Lieut. L. J. LANICH, Kempton.

To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieut. D. H. HILL, Charleston.

Wisconsin

To Fort Oglethorpe for instruction, Capt. H. A. RICE, Gays Mills; Lieuts. G. T. HEGNER, Appleton; W. C. ROTH, Franksville; C. W. LOCKHART, Mellen.

To Fort Riley for instruction, Lieut. V. E. EKBLAD, Superior.

Wyoming

To Fort Oglethorpe for instruction, Capt. G. M. ANDERSON, Casper.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ILLINOIS

Laboratory of Hygiene.—One of the new features of the Public Health exhibit at the State Fair this year is that of the State Hygienic Laboratory, which is in charge of Martin Duprey.

Personal.—Mr. Joseph Purvis, superintendent of the West Suburban Oak Park Hospital, has been appointed hospital superintendent for the American Red Cross, and will be placed in charge of one of the base hospitals in France.

Illegal Practitioner Sentenced.—Mr. Leo Brodowitz, who was arrested by the *Department of Registration and Education* for practicing medicine without a license, was found guilty in the county court of St. Clair County and sentenced to be confined in the St. Clair County jail for six months. When he has served his sentence, he will be turned over to the authorities of Kane County.

Infantile Paralysis.—Three deaths have occurred at St. Charles from infantile paralysis, and all children under 16 years of age have been ordered to be quarantined in their homes.——The opening of the schools of Winnetka will be delayed one week on account of the presence of infantile paralysis in that suburb. Four cases have been reported in the territory surrounding Winnetka, during the last two months, with one death.

Typhoid Fever.—The threatened typhoid fever epidemic at Wheaton is believed to have been checked. The disease was traced to a woman, a typhoid carrier, on a dairy farm near Wheaton. Within two weeks sixteen cases of typhoid fever had developed in the city.——Typhoid fever is reported to be epidemic at Rock Island, Moline, Joliet and Jacksonville. In one block in Joliet there have been seven cases of typhoid, traceable to the use of water from three wells which have now been condemned.

Chicago

Personal.—Drs. Leslie D. Dougherty and Benjamin Feltenstein, while proceeding in an ambulance to the relief of those injured in the recent bomb explosion at the Federal Building, were injured by a collision between the ambulance in which they were riding and a street car.——Col. Frank Billings sailed recently for duty overseas to study problems of reconstruction surgery. He will probably return after a few months to supervise the work of his division in this country.

INDIANA

Children's Clinic.—A children's clinic, under the auspices of the Child Welfare League, has been established at Fort Wayne, and is open each Wednesday morning, between 9 and 11 a. m. Furniture and supplies for this clinic have been donated by physicians, other individuals and firms of Fort Wayne.

Hospital Notes.—The Marion County Council has given assurance that an appropriation of $100,000 will be made for additional buildings and improvements at the Marion County Tuberculosis Hospital.——The commissioner of Madison County has purchased the Beachler Farm, near Moss Island, to be utilized as a site for a tuberculosis hospital. The purchase price agreed on was $92,000 for the tract of 9 acres.

Action on Venereal Diseases.—According to a new rule just adopted by the state board of health, persons afflicted with venereal diseases will not be permitted to travel from one place to another in Indiana unless they obtain a permit from the local health officer or from the state health commissioner. On arrival at their destination they must report to the health officer at that point and be subjected to proper supervision. The permission to move from one place to another will not be given unless circumstances are "urgent and legitimate."

Personal.—Dr. Herbert T. Wagner, Indianapolis, left, September 10, for foreign service with the American Red Cross. Dr. Amelia R. Keller, Indianapolis, has been appointed a member of the Board of Trustees of the Indiana Girls' School at Clermont.——Dr. William H. Foreman, Indianapolis, has been appointed resident medical director of the State Hospital, to succeed Dr. Guthrie H. Wisener, Indianapolis, who has resigned to enter the United States Public Health Service. ——Dr. Theodore F. Wood, Angola, while handling a colt was thrown, and his hip was either dislocated or fractured.——Dr. Paul E. Bowers, Michigan City, has been appointed assistant surgeon of the California Soldiers' Home.——Dr. Uberto H. Merson, Anderson, has been appointed deputy health commissioner of Anderson, to succeed Dr. John C. Armington, Anderson, who has resigned to enter the military service.—— Dr. Herman G. Morgan, secretary of the board of health, Indianapolis, has been appointed as acting assistant surgeon in the United States Public Health Service, to have charge of sanitary regulations at Fort Benjamin Harrison and vocational training camps in Indianapolis.——Dr. John K. Kingsbury, Indianapolis, is suffering with a severe injury to his eyes caused by the explosion of chemicals.

IOWA

Personal.—Dr. Charles M. Hazard has resigned as mayor of Arlington to enter the military service.——Dr. George P. Neal is said to have entered suit against the mayor and members of the city council, as members of the board of health, of Fort Madison, claiming $4,178 as due to him for services rendered during a smallpox epidemic in the city two years before.——Lieut.-Col. David S. Fairchild, Clinton, has been appointed chief surgeon of the 42d or Rainbow Division, A. E. F.——Dr. Delos N. Reeve, Allison, is reported to be seriously ill and under treatment at the hospital at Waverly.

Infantile Paralysis.—On account of the prevalence of infantile paralysis at Wilton, the entire town has been placed in quarantine with orders to isolate every child under 16 years of age at its home. At present five cases of the disease have been reported.——Two cases of infantile paralysis are reported at Lattners.——The state board of health has received reports of three cases of infantile paralysis from Bellevue. ——In all 110 cases of infantile paralysis have been reported thus far this year to the state board of health.——A second case of infantile paralysis in Sioux City was reported, August 14.

MARYLAND

Hospital for Curtis Bay.—As a result of the success of a campaign of only a week, funds have been secured for the erection of a hospital at Curtis Bay. Work on the institution will be started immediately. More than $11,000 of the $50,000 needed has been subscribed and two sites have been offered.

Personal.—Col. John M. T. Finney, Baltimore, who returned to this country early in August on a special mission, has again sailed for France to assume his duties as chief consultant surgeon of the American Expeditionary Forces in France.——Lieut. Charles A. Waters, M. C., U. S. A., who recently returned to this country after fourteen months' service with the Johns Hopkins Base Hospital in France, will leave shortly for Fort Oglethorpe, Ga., where he will be an instructor in the roentgen-ray division of that cantonment. He expects to return to France later.——Dr. Harry G. Johnson, superintendent of Sydenham Hospital, Baltimore, has resigned his position to enter military service.

MINNESOTA

Typhoid at State Hospital.—An outbreak of typhoid fever has occurred at the Rochester State Hospital for the Insane. Thirteen cases have thus far been reported, including twelve patients and one nurse. The 1,300 patients and all employees have been inoculated against typhoid.

Infantile Paralysis.—Infantile paralysis is said to be on the increase in Spring Grove, where 16 cases have already been reported.—The city health department of Minneapolis placed under quarantine three cases of poliomyelitis, August 28. It is believed the patients in each case contracted the disease outside of the city.

Protective Association Organized.—The physicians and dentists of Dodge County met at Dodge Center, August 16, and organized the Physicians and Dentists Protective Association of Dodge County. The purpose of the association is to shorten the terms of credit and for the mutual protection against slow-paying patients. Dr. Carl L. Nelson is secretary of the association.

Teaching Fellowships.—The Medical School of the University of Minnesota is offering teaching fellowships for graduate work in internal medicine, surgery, obstetrics, pediatrics and ophthalmology and oto-laryngology. These fellowships cover a period of three years' study and lead to the Doctor's degree in Science or Philosophy. They are under stipends of $500, $750, and $1,000 for each of the successive years.

State Society Meeting.—At the annual meeting of the Minnesota State Medical Association at Duluth, August 28 to 30, under the presidency of Dr. Arthur J. Gillette, St. Paul, Minneapolis was selected as the place of meeting for 1919, and Dr. George D. Head, Minneapolis, was elected president, and Dr. Earle R. Hare, Minneapolis, secretary, succeeding Dr. Thomas S. McDavitt, St. Paul, who has served for several years in this office.

Mothers Should Nurse Their Babies.—Considering the facts that the death rate of infants of less than one year is considerably more in infants artificially fed, and that the health and well-being of infants under one is dependent in a great measure on proper nursing at the breast, the state board of health and state board of control have jointly adopted resolutions providing that no patient shall be received by any person, or at any hospital or institution licensed by or under the supervision of either board on any basis other than that the mother shall nurse her own child as long as she shall remain under the care of the said person, hospital or institution, providing that when nursing by the mother is an impossibility for any physical reason, exception to the rule may be made by the boards, acting on proper medical advice.

MISSISSIPPI

Personal.—Dr. Willis Walley, Jackson, for four years sanitary inspector for Mississippi, has been appointed superintendent of the State Charity Hospital, Jackson, succeeding Dr. L. S. Rogers, who has resigned to become candidate for state treasurer.

Advisory Board Conference.—A conference of the Medical Advisory Boards of South Mississippi was held at Hattiesburg, August 31, to discuss methods of increasing the efficiency of the draft boards of the state, in order that the percentage of rejections at mobilization camps be reduced.

MISSOURI

Personal.—Dr. Milton P. Overholser, Harrisonville, who has been ill in St. Mary's Hospital, Kansas City, on account of septicemia, due to a carbuncle, is reported to be convalescent.——Dr. Alonzo L. Carpenter, Joplin, has been appointed coroner of Jasper County, succeeding Dr. Robert M. James, resigned to enter the military service.——Dr. Martin C. Woodruff, chief diagnostician of the health department of St. Louis, has been placed in charge of the field work of the Red Cross Medical Commission in Italy and will sail this month.——Dr. Charles R. Johnson, superintendent of the Leeds Hospital and physician-in-charge of the Contagious Disease Department at the Kansas City General Hospital, is said to have been removed from office by the health board, August 13.——Dr. Willis V. Smith, Kansas City, is said to have been arrested, charged with selling drug prescriptions to addicts.

NEBRASKA

Scarlet Fever.—The ban placed on public meetings in July, in Fairbury, on account of scarlet fever has been removed. Since the epidemic 350 houses have been quarantined, and six deaths from the disease have occurred.

Northwest Physicians Meet.—An adjourned session of the Northwest Nebraska Medical Society was held at Long Pine, August 16, at which the following officers were elected: President, Dr. Charles C. Root, Bassett; vice presidents, Dr. Hosea J. White, Ainsworth; secretary, Dr. James M. Tische, Wood Lake, and treasurer, Dr. Thomas J. Lawson, Long Pine. It was decided to eliminate the semiannual session, as so many of the members of the association are away on military service.

Personal.—Dr. Henry J. Lehnhoff, Lincoln, has been appointed a member of the advisory board of the state board of health to succeed Dr. Joseph J. Hompes, Lincoln, who has resigned to enter the military service.——Dr. L. B. Pilsbury, Lincoln, superintendent of the Nebraska State Hospital for Insane, Lincoln, has resigned to enter the military service, and has been succeeded by Dr. James D. Case, Lincoln, who has been appointed acting superintendent.——Dr. Frank S. Marnell, Lincoln, assistant superintendent of the Nebraska State Hospital for Insane, Lincoln, has resigned to accept a position in the state hospital, Stockton, Calif.——Dr. Newell Jones, Omaha, has been appointed surgeon to the American Red Cross and will soon go to France with a hospital unit.

NEW YORK

New York City

Influenza on Liner Fatal.—A liner arriving at an Atlantic port was detained several hours owing to an outbreak of influenza. The vessel left France, August 24, and during its voyage had twenty-five cases of Spanish influenza on board, two of which proved fatal. Those showing symptoms of the disease were taken to a local hospital for further observation.

Special Course for Laboratory Assistants.—New York University and Bellevue Hospital Medical College, together with other medical schools throughout the country, began, September 3, a special three months' course in bacteriology to train laboratory assistants for immediate war service. These courses have been instituted at the request of Surgeon-General Gorgas, and have been arranged by Dr. William H. Park and Dr. Anna W. Williams.

Public Health Committee Advocates School Lunches.—The Public Health Committee of the New York Academy of Medicine has issued a statement on the value of school lunches which calls attention to the large percentage of undernourished children in our population and the reasons for this phenomenon. It has been proved in this city and elsewhere that in groups children will much more readily eat food to which they have not been accustomed. Peculiarities of taste and racial customs are readily overcome through the stimulation of group feeding, the children eating the new foods with relish. Herein lies the educational value of the so-called school lunches which in many cities of our country and in other countries have proved to be of genuine benefit to the children in a great variety of ways. The statement includes a demand that the plan of furnishing school lunches be extended, and that instead of being, as hitherto, a private philanthropy the city government should institute this important service with the opening of the new school year.

NORTH CAROLINA

Full-Time Health Officer.—Wayne County has recently arranged for the services of a full-time health officer. This is the tenth county in the state that has come into line.

Personal.—Dr. William T. Rainey, Salisbury, who has been under treatment in Baltimore for several weeks on account of injuries which he sustained in an automobile accident last spring, has returned, greatly improved in health.

Campaign for Orthopedic Hospital.—Citizens of Gastonia have recently inaugurated a campaign to secure an additional $20,000 for the building of the North Carolina Orthopedic Hospital, a charter for which was granted at the last session of the legislature.

PENNSYLVANIA

Philadelphia

Personal.—Dr. Frank C. Hammond, president of the County Medical Society, has been commissioned a major as medical aide to the governor, to succeed Dr. Edward P. Davis, who recently resigned.

Alcoholism Decreasing.—According to the monthly report of Dr. Joseph C. Doane, resident physician of the Philadelphia General Hospital, the number of patients in the hospital during the month of August reached 1,537, as compared with 2,200 in the corresponding month of last year. In the alcoholic wards, there were twelve patients, as compared with 175 for the month in 1917. During the entire summer there have been but two cases of delirium tremens, as compared with twelve last year.

Volunteers for Hospital Work.—A call to patriotic men and women to volunteer services and relieve a serious situation caused by the labor shortage has been made by the Pennsylvania Hospital. Not only has this hospital lost 75 per cent. of its medical and surgical staff for service overseas, but also employes have left other departments to obtain situations in plants turning out government work. Orderlies, porters, cleaners, kitchen help, firemen and others, necessary to the maintenance of hospital work, are all greatly needed.

Physicians to Aid Municipal Court.—A department of diagnosis under the direction of Dr. Charles B. Penrose will be used henceforth in the administration of justice in the Municipal Court. Associated with Dr. Penrose will be Drs. Daniel J. McCarthy, Charles S. Potts, Seymour W. Ludlum, John C. Da Costa, Jr., Frank W. Swallow, John M. Baldy. Restoration of the "misfits of society" who come before the court is planned through the organization of the staff of consulting physicians who will visit the department of diagnosis and examine such patients. These cases will include child delinquency, abandonment of children, nonsupport, incorrigibility, street walking and crime. The new department will coordinate with the medical and psychologic work of the court.

VIRGINIA

Smallpox.—The smallpox epidemic in Leesburg and vicinity has been checked by radical measures. All churches and moving picture theaters are closed and all public gatherings prohibited.

Personal.—R. D. Caldwell has been appointed assistant bacteriologist of the Richmond Health Department, succeeding Miss Margaret McCluer, who recently resigned to take up special war work at Westhampton.——Dr. Peyton M. Chichester, Bethesda, Md., has been appointed acting medical inspector in the health department of Richmond, succeeding the late Dr. Lucien Lofton, Emporia, Va.——Dr. J. E. Hendrickson, Newport News, has been elected senior vice-commander of the Spanish-American War Veterans of Virginia.

WASHINGTON

Increase in Health Budget.—The health department of Spokane has asked for an appropriation of $10,050.50 greater for 1919 than for 1918. The increase is due to the increased activities of the health department during the year.

Correction of Minor Defects.—Dr. James Carroll, Tacoma, has undertaken the work of preparing young men who have attempted to enter the military service, but through some physical defects have been rejected, so that they may be accepted for service.

Personal.—Major Horace J. Whitacre, M. C., U. S. Army, Tacoma, has been appointed director and chief of staff of the Evacuation Hospital Unit, now training at Camp McPherson, Ga., and will soon be sent to France.——Dr. William D. Kirkpatrick, Bellingham, will soon sail with a medical unit for Russia.——Dr. John S. McBride, city health commissioner of Seattle, has been commissioned Lieutenant-Commander, U. S. N R. F., and directed to organize Naval Base Hospital No. 17. The chiefs of the section are as follows: Lieutenant-Commander, John S. McBride, director and chief of the surgical section; Lieut. George A. Dowling, Seattle, chief of the medical section; Lieut. Jay T. Dowling, Seattle, chief of the eye, ear, nose and throat section, and Dr. Jonathan E. Henry, Tacoma, chief of the laboratory division.

CANADA.

Resolution by Medical Association Against Alcohol.—At its recent meeting the Manitoba Medical Association entered a resolution in the minutes of the society that the restrictions placed on the sale and use of alcohol in that province had resulted in the moral, physical and economic betterment of the people.

Nurses to Affix R. N. to Names.—In the province of Ontario, Manitoba, Saskatchewan, and Alberta, nurses are now authorized by law to affix R. N. to their names, if they have graduated from authorized hospitals and have satisfied all the requirements of the respective laws made on the subject of registration of nurses.

Canadian Scale of Pensions.—The Canadian government established in October, 1917, a scale of pensions: Total disability, $600; widows, $480; parents, $480; children, $96; orphan children, $192; special allowance for helplessness, not to exceed $300; number of classes of disability, 20 and gratuity. There are twenty-two physicians on the pension board at Ottawa; and the average number of pensions issued totals 120 per day.

Clinic Conducted at London, Ont.—Dr. Thomas McCrae, head of the Jefferson College of Medicine, Philadelphia, recently conducted a clinic at the Western Ontario School of Medicine and Victoria Hospital, London, Ont.; 175 medical men from the western part of Ontario attended. The clinic demonstrated the newer methods of treatment of diseases of the heart, kidneys, joints, and blood. London plans to hold four clinics a year and will endeavor to bring to that center medical authorities of high international reputation.

Work of the Khaki University.—President Sir Robert Falconer of the University of Toronto is in England, engaged in teaching in the Khaki University of Canada. This institution, which has been established in connection with the Canadian forces overseas, is designed for assisting those soldiers who wish to continue their studies in commercial subjects, agriculture, engineering and general education. Ninety-three libraries have been established in Army areas in England and France. The teaching is done entirely by voluntary instructors.

New Training Centers for Nurses Established.—The Victoria Order of Nurses have four training centers in Canada—Montreal, Ottawa, Toronto, and Vancouver, B.C. As there is a very great shortage of nurses in western Canada, it is proposed to establish various centers in the three western provinces of Manitoba, Saskatchewan and Alberta. Those entering the Order must be fully qualified nurses and must take the special six months' course of the organization, which consists in district work, school work, child welfare, social service and public health.

Vital Statistics of Winnipeg.—According to the semiannual report of Alexander J. Douglas, medical health officer of Winnipeg, the population of the city has begun to increase again after a decline during three years, brought about by the war. For 1918 the population is 183,600 as against 182,850 for 1917. There was a decline of over 17,000 in 1917 notwithstanding a surplus of births over deaths of nearly 4,000. For 1917 the natural increase was 3,718. Marriages also showed an increase from 1,158 in the first half of 1917 to 1,212 in the first half of 1918. The number of marriages had declined from 1913 to 1917. The death rate for the first half of 1917, as well as for 1918, was about 10.41 per thousand inhabitants.

GENERAL

Meeting Postponed.—The Ohio Valley Medical Association, which was scheduled to hold its twentieth annual meeting at Evansville, Ind., November 12 and 13, has decided to postpone the meeting indefinitely because of war conditions.

Bequests and Donations.—The following bequests and donations have recently been announced:

Lyons (N. Y.) Home for Crippled Children, $2,500; Industrial Home for Crippled Children, $2,500, and Homeopathic Hospital, New York City, $5,000, by the will of Alphonse Alfred Galot.

Corning Hospital, Corning, N. Y., the principal of a trust fund amounting to several hundred dollars on the death of the beneficiary, by the will of Ethelaide Bump.

Germantown Dispensary and Hospital for free beds in memory of Frederick J. Kimball, Eliza M. Needles and William M. Needles, $15,000, by the will of Helen M. Hathaway Graffin.

American Red Cross, the estate of Charles S. Kahn, Evansville, Ind., valued at more than $100,000.

Tri-State District Society.—The Tri-State District Medical Society of Illinois, Iowa and Wisconsin has been incorporated, with headquarters in Freeport, Ill. Drs. Karl F. Snyder and William B. Peck, Freeport, are trustees. At the recent meeting of the association at Madison, in addition to the officers elected at the quarterly meeting, the following officers were elected: Vice presidents, Drs. Henry G. Langworthy, Dubuque, Iowa; Charles R. Bardeen, Madison, Wis., and Walter B. Helm, Rockford, Ill., manager and director, Dr. William B. Peck, Freeport, Ill., and secretary-treasurer, Dr. Domer G. Smith, Freeport, Ill.

Meeting of Food Control Association.—At the twenty-second annual meeting of the Association of American Dairy, Food and Drug Officials, held recently in Chicago, new officers were elected and resolutions were adopted setting forth the unnecessary waste in collection and shipment of cream for manufacturing purposes, renewing their pledge to support and assist the United States Food Commissioner, endorsing the existing association of food manufacturers and advocating more complete organization of their forces, and admitting to membership on the joint committee on definition and standards only members who have no financial interest in dairy, food or drug products.

Regulations on the Use of Paper.—The Paper Division of the War Industries Board has for some time been securing data concerning newspapers and periodicals, especially relative to the amount of paper used. Now, in the interest of the economic use of paper, but primarily for the conservation of fuel, certain definite regulations have been made by this board governing the use of paper. One of the regulations provides for a maximum weight of paper used in periodicals. This maximum will make it necessary for The Journal to use slightly lighter paper. The reducation in weight will not be apparent to the casual reader. As The Journal has a considerable amount of paper on hand, the lighter stock will not be used for some weeks. The important regulations are the following: (1) against continuing subscriptions after date of expiration; (2) against the sending out of complimentary copies; (3) against sending more than one copy to advertisers; (4) against sending sample copies to stimulate circulation or advertising, except under special permit; (5) against exchanging with other journals; (7) against selling at an exceptionally low or nominal subscription rate. It is suggested to publishers that they economize if possible "by cutting the number of pages, the curtailment of circulation, or in any other way publishers choose." Finally, each periodical is requested to reduce the total tonnage to what amounts to about 15 per cent. These various regulations will not affect The Journal seriously, except that the number of pages in each issue will have to be kept down to the minimum, and complimentary copies cannot be sent even to other medical journals in exchange.

FOREIGN

Election in Netherlands Cancer Research Society.—The address of the secretary of the Nederlandsch Kankerinstitut is Prof. J. J. van Loghem, Rokin 62, Amsterdam. Prof. J. Rotgans is president, and the directors include Drs. Delprat, de Josselin de Jong and Westerman, and Profs. B. J. Kouwer and Pekelharing.

Floods Exterminate Bilharzia.—The *Nederlandsch Tijdschrift* quotes the *Medical Journal of South Africa* to the effect that the recent inundations in southern Africa have had the unexpected result of apparently clearing out the bilharzia. The parasitologist, A. P. Fantham, was unable to find any specimens of bilharzia after the inundation had subsided, even in regions previously densely infested. The larvae of mosquitoes and flies were also swept away to a large extent.

Military Medical Journal.—The authorities in Italy have been publishing for over a year a medical-surgical review of French, English and American publications on medical and surgical subjects bearing on the war. It is distributed to every member of the profession that has been mobilized in Italy. The *Policlinico* comments on the fact that a new journal was founded for the purpose instead of adapting the *Giornale di Medicina Militare* which has been published for fifty years under the aegis of the war department.

Deaths in the Profession Abroad.—**S. Talma**, professor of internal medicine at the University of Utrecht, pioneer in the study of the collateral circulation with liver disease, and means to promote it by a simple operation; also in the study of gastric ulcers as a consequence of severing the vagus, aged 70.——**G. Guarnieri**, professor of pathology at the University of Pisa, known for his researches on smallpox.——Our Paris exchanges mention the death from "fulminating grippe" of Drs. **J. Labouré** of Amiens, and **S. Burnier**, the former a well known writer on his specialty, the ear and throat.

Children's Outings in the Netherlands.—The arrangements for providing city children with outings in the country—being given a home for two weeks or more in some country family—is assuming such proportions that a bulletin is now issued to supply information to all desiring it. It is sent to every one interested in receiving or placing the children, organizing local committees for the purpose, etc. It tells what the children should take with them, the food that should be given them, and other details, and stimulates families to aid in the work. Doctor Dekker, Statenlaan 70, 's-Gravenhage, is the moving spirit of the whole undertaking.

Health Insurance in Germany.—The *Nederlandsch Tijdschrift* quotes a German exchange to the effect that the Leipzig Ortskrankenkasse has raised the remuneration of its medical officials per insured (the *Pauschalsumme*), from 7.75 marks to 8.50. This is an increase of 11 per cent., and the organ of the insurance companies expresses surprise that the physicians are content with such a moderate raise, especially in Leipzig, the home of the Leipziger League. The *Tijdschrift* remarks parenthetically that the original 7.75 marks (a little less than $2), is a trifle more than the corresponding remuneration in the Netherlands. In Berlin it is announced that all hitherto existing contracts are to be canceled Jan. 1, 1919.

The Profession in Germany After the War.—The representative annual gathering of the profession in Germany, the *Aerztetag*, held recently at Eisenach, discussed among other subjects the return home of physicians after the war. It was voted to appeal to the authorities to demobilize first the older physicians, the fathers of families, the married, and those who have been longest in the service; also that the returning physicians should be given some military post of some kind in the locality where they lived before the war; that posts of assistants should be held open for returning physicians; that opportunity should be offered the medical men who have been working in the field to obtain postgraduate instruction free of charge; that crippled and invalided physicians should be looked out for; that instruments and vehicles which may be released by the demobilization should be offered for sale to physicians at moderate prices, without intervention of middlemen; that physicians also should be given the right to benefit from the war loan fund; that medical instruction and practice should be restricted for aliens, especially in watering places, and that placards should be distributed urging patients to return to their former physicians. According to the present plans of the government, only from 5 to 10 per cent. of the population will be left outside the compulsory sickness insurance system. The *Nederlandsch Tijdschrift* quotes further a German account of Struve's appeal to the Reichskanzler to provide ways and means to avert the dangers that threaten the members of the profession when the war closes. In sharp contrast to these dangers, he emphasized, stand the large incomes that the men who have stayed at home have been receiving. At Chemnitz, for instance, physicians who formerly made 4,000 to 9,000 marks a year, have been getting 9,000 to 16,000 marks. At Gera, the incomes of the insurance physicians have run up to 38,000 marks. The "insurance kings," however, are at Essen, where one has had an income of 61,500 marks, another of 50,000, several others approaching this, and twenty-four have had incomes between 20,000 and 29,040. The 175 physicians in the Essen district have been getting on an average from the insurance companies 12,000 marks (about $3,000). In the Netherlands, our exchange remarks, the number of patients that the insurance physician can treat is limited by the regulations, but this is not the case in the above places, and the payment is by the individual service rendered.

The Council on Pharmacy and Chemistry and the Patriotic Medical League in Italy.—The Unione dei Medici Italiani per la Resistenzia Nazionale was organized mainly to combat enemy propaganda, but it has enlarged its scope to include all kinds of welfare work for the country itself. Some of its activities were mentioned recently by The Journal. It publishes a small weekly to outline and insure concerted action. Recent issues have been devoted mainly to discussion of ways and means to promote the domestic production of drugs which have hitherto been imported. In the issue for July 7 the work of the Council on Pharmacy and Chemistry of the A. M. A. is described in detail, with translated reproductions of a number of the reports published by the Council in the Propaganda Department of The Journal. They are translated into Italian as also some of the pages of N. N. R. Among the reports cited are some on Ambrine, Radio-Rem and Pertussin. The description of the work of the Council is by Dr. V. Ronchetti, physician in chief of the Ospedale Maggiore of Milan. The question of supervision of pharmaceuticals is one of the leading topics being discussed by the league, and Ronchetti refers to the work of the Council on Pharmacy and Chemistry to show, as he says, what is being done in the United States in this line, "in a truly admirable, simple and practical manner."

He comments on the reports reproduced, saying, "No one can fail to see the great usefulness of such reports brought within reach of physicians in one of the most widely circulated journals. It is true that in Italy there already exist some institutions for official control of the production of chemicals and pharmaceuticals, but as they are, at present, they do not satisfy either the manufacturing chemists or the medical profession. . . . In reality our institutes fail to satisfy the producers because too often the visit of inspection to the factories and pharmacies is reduced to an empty bureaucratic formality, and the manufacturers do not feel effectually protected against the eventuality of disloyal competition. The institutes fail to satisfy the physicians because the deliberations, the verdicts, etc., which are issued from these supervising institutes never appear in widely circulated medical journals. There is never a trace of them in the medical journals commonly read. The practitioner learns to know the new pharmaceuticals only from the literature advertising them, sent out by the firm which produces them. Rarely indeed can he find serious, reliable articles referring to them in the accessible literature at his disposal. As to the certificates, often so numerous as to fill entire pamphlets—no one takes them seriously nowadays—not even the signature of a well known name. In fact, institutions grow old and outlive their usefulness, like human beings and, for this reason, an age limit is imposed by Nature if not by the laws.

When they reach this, the best they can aspire to is a jubilee celebration. Instead of repairing and propping up old tottering institutes, it is better to found new ones. This, it seems to me, for obvious reasons cannot be left to private initiative. It should not be a difficult matter to coordinate certain departments in different universities to form the nucleus for an *istituto di controllo* for medicinal products —an institution which would serve as a guarantee for the sick, as a guide for the manufacturing chemists in their production, and for physicians in their application of the products."

SOUTH AND CENTRAL AMERICA, MEXICO AND WEST INDIES

Buenos Aires Election.—The Sociedad de Obstetricia y Ginecologia recently elected its officers for the 1918-1920 term: president, Dr. T. J. Piccardo; vice president, Dr. J. C. L. Massini; secretary general, Dr. A. Frers, and recording secretary, Dr. F. R. Pasman.

Medical Bibliography of Argentina.—The classified titles of all medical works published by Argentine physicians during the years 1915, 1916 and 1917 is soon to be issued. It is proposed to publish similar volumes periodically to record the entire medical bibliography of the country. The work is in charge of Dr. M. A. Blanco, and the first volume, now on the press, opens with a historical sketch by Dr. J. Tumburus, librarian of the medical department of the university.

The Venezuela Academy of Medicine.—The retiring president of the Academia Nacional de Medicina, Dr. F. A. Risquez, founded a prize of 500 bolivars ($100) to be awarded biennially for the most useful work on tuberculosis, based on personal studies and observations. In case no work is deemed worthy of the prize, the sum can be awarded to the physician who has distinguished himself by his efforts on behalf of the *union y cordialidad* of the medical corps. Lacking a candidate of this kind, the prize money can be applied for the library of the Academia. The Vargas prize for 1917 was awarded to Dr. J. R. Risquez for his work, "Bilharziosis Mansoni in Venezuela," and, for 1918, to Dr. E. Tejera for his work on "American Leishmaniosis in Venezuela." The officers elected for the coming two years are: president, Dr. D. Lobo; vice presidents, A. Ayala and J. D. Villegas Ruiz; perpetual secretary, Dr. L. Razetti who is also director of the *Gaceta Medica,* the official organ of the Academia, associated with Dr. A. Ayala as *secretario de redaccion.*

LONDON LETTER

London, Aug. 13, 1918.

Medical Schools in the Armies in France

It is not generally realized how much education is going on in our armies in France—education not only in the art of war but in fitting men for careers in civil life. An important new departure has been made in the medical service by the provision of instruction in the work required in front line areas. Workers in these areas are put in touch with any knowledge gained at bases or elsewhere that can be useful to them. Gaps that exist in the military education of the large proportion of the existing medical officers are filled, and they are furnished with a wider view of the aims of military medicine than they can gain in their own military formation. The schools are not confined to the Royal Army Medical Corps but include colonials, Americans and Portuguese, combatants and noncombatants. Those who attend from the R. A. M. C. are drawn mainly from regimental medical officers and from field ambulances and sanitary sections, with a smaller proportion of officers belonging to casualty clearing stations. The pupils from combatant units are usually platoon officers, stretcher bearers and members of regimental sanitary squads, with a few men training as regimental chiropodists. In dealing with the combatant classes the chief aim is to make them conversant with the best ways of rendering first aid and to impress on them the value of sanitation and how it can be best secured. The special lectures for medical officers deal with new developments of the medicine and surgery of war. The commandant of the school is also commanding officer of the casualty clearing station in which the school does its work. The adjutant is on loan from a field ambulance, and the instructor is a surgical specialist lent by one of the less active clearing stations. Visiting lecturers who are specialists of various kinds also help. The subjects invariably taught are the application of the Thomas splint, with special reference to the prevention of shock, the application of the rifle splint, the arrest of hemorrhage, the use of the triangular bandage, and the construction and use of field sanitary appliances. In addition, all ranks take part in physical exercises and ordinary drill, and all medical officers have riding lessons and attend demonstrations of useful ways of varying the use of the foodstuffs issued as rations. These subjects are mainly dealt with by practical classes. It is now the universal practice in the British army in France in all cases of fracture of the femur, in extensive flesh wounds of the thigh, in injuries to the knee joint and in severe fractures of the upper part of the tibia to secure immobilization before evacuation from an advanced dressing station or even a regimental aid post. For this purpose the Thomas splint is considered the best, except when a fracture of the femur is complicated by an unusually extensive wound in the buttock or upper part of the thigh that interferes with the fitting of the ring. The method of application taught includes attention to the value of warmth and absence of pain in the prevention of shock, and does not involve the removal of either clothes or boots or exposure of the wound until complete immobilization is achieved. It also assumes that the operator will have not more than two assistants, and possibly only one. The principle taught is that in applying the Thomas splint in an advanced dressing station no thought should be necessary but every action automatic. To secure this result the whole process has been worked out as a drill in which the various movements are indicated by numbers. [Compare Osgood, R. B.: The Transport Splints of the American Army, The Journal, Aug. 31, 1918, p. 734.—Ed.] This covers everything from the initial warming of the patient by blankets and a Primus stove to fixing the splint to a suspension bar on the stretcher and placing hot-water bottles and blankets for the journey. A man who knows the drill well can carry it out efficiently in the dark. A first call team can put up a limb perfectly in two minutes forty-five seconds.

The Museum of the Royal College of Surgeons

The annual report on the Museum of the Royal College of Surgeons shows that much progress has been made with the war collection. The opening of this important collection, which should be visited by every American surgeon who comes to London, was described in a previous letter to The Journal. The number of specimens has increased from 1,500 to 2,700. There is a Canadian section prepared by members of the Canadian Army Medical Corps. A staff of experts, under Major F. Lessore, the distinguished sculptor, has been engaged at No. 16 Canadian Military Hospital making wax and plaster models, colored drawings and colored photographs of wounds and war deformities. It is hoped that Australian and New Zealand sections will be added, for all the dominions are contributing specimens with the view of building up army medical museums for their own countries. Canadian specimens have already been dispatched from the museum to Montreal. The Australian Medical Corps has given the museum staff assistance in dealing with specimens from Australian hospitals. To the general museum important additions, pathologic, teratologic and physiologic, have been made. Mr. Alban Doran has made considerable progress with a new descriptive catalogue of the surgical instruments in the possession of the college. The descriptive catalogues of the obstetric and gynecologic instruments in the museum, as well as of the surgical instruments which were the property of Lord Lister, have been completed, as also that of the instruments of John Hunter and other hunterian relics.

Fat Rations for Jews

The Ministry of Food has made arrangements for the provision of kosher margarin for Jews. Facilities will also be given to Jews who, for religious reasons, cannot use their lard coupons, to exchange these, on signing a form of declaration, for either half an additional butter-margarin ration or for a weekly ration of vegetable oil, the quantity of which will be announced later. The schemes of distribution for kosher margarin and for oil for Jews have been worked out after discussion with the representatives of the Jewish community. Kosher margarin is manufactured at all factories at present engaged in the production of margarin, but instead of containing 20 per cent. of animal fat, which is permitted in the standard margarin, it is made entirely of milk and vegetable products. A rabbi, or a rabbi's nominee, is always present at the process. He tests the milk that is used, and when he is satisfied that the margarin is properly kosher, he affixes his seal to the case or packet and it is issued to the trade.

The Expulsion of Enemy Members of the Royal Society

A special general meeting of the Royal Society has been called to consider the advisability of expelling enemy foreign members, and notice of the following motion to be submitted has been given by Sir George Beilby and Dr. M. O. Forster: "That, in view of the war's having continued during nearly four years without any indication that the scientific men of Germany are unsympathetic toward the abominable malpractices of their government and their fellow countrymen, and having regard to the representative character of the Royal Society among British scientific bodies, as recognized by the patronage of his majesty the king, the council forthwith takes steps necessary for removing all enemy aliens from the foreign membership of the society." Although Sir George Beilby and Dr. Forster are both members of the council, this resolution is apparently not put forward by the council officially. The notice convening the meeting states that the council had under consideration the question of expelling the enemy foreign members. They considered that, if possible, unity of action between the Allied nations should be secured, and in view of the fact that a conference between representatives of Allied academies will take place next October, they resolved to refer the question to that conference. In the meantime they desire to obtain the opinion of the fellows of the society on the subject for the guidance of their representatives at the conference, which has been called for the purpose of discussing the future of scientific work hitherto carried out by international organizations.

The Release of Medical Students from the Army for the Purpose of Study

A new army council instruction has been issued with regard to the release of medical students serving with the colors for the purpose of resuming their professional studies. A medical student now serving with the colors who at the time of his enlistment was engaged in medical studies and who (*a*) is in his third year or (*b*) at the time of enlistment had passed the whole of the professional examination in chemistry, physics and biology (or botany and zoology) for a medical degree or license is, if eligible and he so desires, to be transferred (regardless of his medical category) to the reserve, or discharged if ineligible for transfer to the reserve, for the purpose of resuming his studies with a view to obtaining a medical qualification. A third-year student is defined as one who had on or before enlistment completed two years of medical study, and who can within thirty-six months complete his professional curriculum and obtain his medical degree or license. A medical student desiring to be released from the colors must state the date on which he wishes to be released, and undertake to resume his studies with a view to qualifying. If a third-year medical student, he will be required to produce a certificate from the dean of his medical school showing (1) whether he has or has not passed his professional examination in anatomy and physiology; (2) that prior to enlistment he had satisfactorily pursued his professional studies during two years, and was then actively studying with a view to qualification, and (3) that he can qualify within thirty-six months. If not a third-year student, he must produce a certificate from his dean showing that prior to enlistment he had passed the whole of the first professional examination, and that at or immediately before enlistment he was actively pursuing medical studies and had been studying as a whole-time medical student for at least six months at a recognized medical school or college.

An American Unit for Palestine

The American Zionist Medical Unit arrived in this country and stopped in London to make final arrangements before leaving for Palestine. The party, which is in charge of Mr. Lewin Epstein, consists of forty-four persons, including fifteen physicians and dentists, twenty nurses, two sanitary specialists, and social workers and administrators. The equipment of the unit, more than 400 tons in weight, comprised a 100-bed hospital, roentgen-ray apparatus, drugs, instruments, ambulances, and clothes for the destitute (Jewish and non-Jewish) among whom it will work, and was shipped from New York direct to Egypt.

More Hospitals for Americans

To provide further hospital accommodation in this country for wounded Americans, the Army Council has arranged to take over the Southern and North-Eastern hospitals of the Metropolitan Asylums Board. The Portsmouth Corporation has agreed to hand over the local mental hospital.

Marriages

Lieut. Lauren Guy Sheets, M. R. C., U. S. Army, Cleveland, on duty at the Mayo Clinic, Rochester, Minn., to Miss Coletta M. Greulich, also of Cleveland, at Rochester, July 13.

Lieut. Erwin E. Mayer, M. C., U. S. Army, Baltimore, on duty at Camp Meade, Md., to Miss Miriam Lustig, also of Baltimore, August 22.

Capt. Walter Mansfield Scott, M. R. C., U. S. Army, Alamagordo, N. M., to Miss Annie Georgina Dickson of El Paso, Texas, August 29.

Lieut. Henry Marks Goodyear, M. R. C., U. S. Army, Morton, Ill., to Miss Gertrude Elliott of Streator, Ill., September 4.

Matthew Nicholas Tennis, Dorchester, Boston, to Miss Clara Lois Rheno of Vineyard Haven, Mass., September 3.

John I. McGonigle to Miss Lizzie E. Marsh, both of Pueblo, Colo., in Washington, D. C., August 19.

Capt. Frederick Paul Moersch, M. R. C., U. S. Army, to Miss Agnes Dries, both of Minneapolis, July 15.

Lieut. Robert Preston Henderson, Jr., U. S. Navy, to Miss Gladys Willis, both of Tampa, Fla., August 24.

John Patterson, Frankfort, Ky., to Miss Christine Marston of Owenton, Ky., August 18.

Charles Henri Leonard to Mrs. Helen Blakeslee Mann, both of Detroit, August 8.

Deaths

Daniel Worrell Jefferis, Chester, Pa.; University of Pennsylvania, Philadelphia, 1865; aged 76; a Fellow of the American Medical Association; first president of the Delaware County Medical Society, serving for more than ten years in that capacity; for three years mayor of Chester, president of the select council for several years, and for nearly a quarter of a century president of the Chester Board of Education; chief of the medical staff of the Chester Hospital; coroner of Delaware County; a veteran of the Civil War; died at his home, September 1, from heart disease.

William Francis Waugh, Chicago; Jefferson Medical College, 1871; aged 69; assistant surgeon, U. S. Navy, from 1873 to 1876; professor of principles and practice of medicine in the Medico-Chirurgical College of Philadelphia from 1880 to 1890, and in the Illinois College, Chicago, from 1894 to 1904; dean and professor of tropical medicine and therapeutics in Bennett Medical College, Chicago, from 1909 to 1913; author of several medical books; died in Chicago, September 5, from intestinal cancer.

Sidney Augustus Norton, Columbus, Ohio; Miami Medical College, Cincinnati, 1869 (Hon.); aged 83; a chemist of international repute; one of the five original members of the faculty of Ohio State University, Columbus, and emeritus professor of chemistry since 1895; author of a textbook chemistry, and a frequent contributor to chemical journals; died at his home, August 30.

Charles L. Healy, Oswego, N. Y.; Georgetown University, Washington, D. C., 1912; aged 29; a Fellow of the American Medical Association; formerly of the staff of the National Soldiers' Home, Dayton, Ohio; a member of the board of health of Oswego; died in the Oswego City Hospital, August 26, from heart disease.

William Lawton Thompson, New York City; Johns Hopkins University, Baltimore, 1904; aged 41; clinical assistant in orthopedic surgery in the Post-Graduate Hospital, and visiting physician to the Blytheville Home; died in the Post-Graduate Hospital, New York City, August 28, from nephritis.

Harry F. McKay, Portland, Ore.; Willamette University, Salem, Ore., 1895; aged 56; a member of the Oregon State Medical Association; since 1914 a member and president of the State Board of Medical Examiners; died at his home, near Lents Junction, Ore., August 23, from arteriosclerosis.

Joseph M. Topmoeller, Cincinnati; University of Munich, Bavaria, Germany, 1880; aged 63; a member of the Ohio State Medical Association, and Cincinnati Academy of Medicine; died at his home, August 26, from nervous prostration.

Alfred Rhinehart Coon, DeWitt, Mich.; University of Michigan, Homeopathic Medical School, Ann Arbor, 1912; aged 34; a member of the Michigan State Medical Society, and president of the Clinton County Medical Society in 1916; died at his home, August 22, after a surgical operation.

Alexander McL. Jeffrey, New York City; New York University, New York City, 1886; aged 58; a Fellow of the American Medical Association; a specialist on tuberculosis; died at his country home, near Croton Lake, Mount Kisco, N. Y., September 2, from cerebral hemorrhage.

Lieut. Joseph Faure Baldwin, M. R. C., U. S. Army, Tyler, Texas; Tulane University, New Orleans, 1915; aged 26; ex-intern at Touro Infirmary, New Orleans, who went to England in the fall of 1917, and was serving in a front line hospital; was killed, August 7.

Henry Granger Hanchett, Orlando, Fla.; New York Homeopathic Medical College, New York City, 1884; aged 65; for many years a resident of Brooklyn; one of the organizers of the American Guild of Organists; died in Siasconset, Mass., August 19.

Lieut. Franklin Henry Dornbusch, M. C., U. S. Army, Chicago; Loyola University, Chicago, 1915; aged 28; a Fellow of the American Medical Association; on duty at Camp Gordon, Atlanta, Ga.; died at that place, September 3, from nephritis.

Lieut. Charles Joseph Valentine Fries, U. S. N. R. F., Philadelphia; Hahnemann Medical College, Philadelphia, 1894; aged 54; who had been on duty at the Cape May (N. J.) Naval Station; died, August 30, from cerebral hemorrhage.

Rebecca Moore, Kennett Square, Pa.; Woman's Medical College of Pennsylvania, Philadelphia, 1883; aged 83; for many years a practitioner of Philadelphia; died in the Friends' Boarding House, Kennett Square, August 27.

Edward Wheeler Bryan, Corning, N. Y.; Homeopathic Hospital College, Cleveland, 1873; aged 85; former health officer of Corning; a member of the medical board of Corning Hospital; died at his home, August 24.

Lieut. Charles W. Wehr, M. C., U. S. Army, Kansas City, Mo.; Kansas City College of Medicine and Surgery, 1918; aged 30; while preparing to report for duty, was seized with pneumonia, and died about August 26.

Daniel Ferdinand Kindel, Cincinnati; Medical College of Ohio, Cincinnati, 1901; aged 40; a Fellow of the American Medical Association; died in the Good Samaritan Hospital, Cincinnati, September 1.

Joseph Wallace Calvert, Bloomington, Ill.; Cleveland Homeopathic Medical College, 1896; aged 52; a member of the Illinois State Medical Society; died at his home, August 16, from pneumonia.

Harvey E. McConnell, Chester, S. C.; University of Maryland, Baltimore, 1890; aged 52; a Fellow of the American Medical Association; died at his home, August 18, from pernicious anemia.

Russell Alexander Reid, Zelienople, Pa.; Jefferson Medical College, 1901; aged 40; at one time a Fellow of the American Medical Association; also a graduate in Pharmacy; died at his home, August 27.

Kossuth T. Crossen, Albany, Ohio; Starling Medical College, Columbus, Ohio, 1900; aged 40; captain of Company K, 102d U. S. Infantry; is reported to have been killed in battle in France, July 24.

James MacKellar, Hazleton, Pa.; Medico-Chirurgical College of Philadelphia, 1891; aged 54; a Fellow of the American Medical Association; died in a hospital in Philadelphia, August 31.

Chandler Holmes Smith, Jr., Madison, Fla.; College of Physicians and Surgeons in the City of New York, 1888; aged 55; died in Madison, August 17, after an automobile accident.

Aaron J. Mathews, Thomson, Ga.; Atlanta (Ga.) Medical College, 1890; aged 50; a member of the Medical Association of Georgia; also a druggist; died at his home, August 18.

Granville S. Wellons, Barnesville, Ohio; Medical College of Ohio, Cincinnati, 1863; aged 83; surgeon of U. S. Volunteers during the Civil War; died at his home, August 25.

Alfred McGill Belt, Roland Park, Baltimore; College of Physicians and Surgeons, Baltimore, 1881; aged 71; died at his home, August 24, from heart disease.

Franklin E. Robinson, West Newton, Mass.; Homeopathic Hospital College, Cleveland, 1876; aged 72; died at his home, August 10.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

BITRO-PHOSPHATE

Calcium Glycerophosphate at Sixteen Hundred Per Cent. Profit

Bitro-Phosphate is put on the market by the Arrow Chemical Co. of New York; it is recommended:

> For neurasthenia, nervousness, irritability, depression, brain-fag, insomnia, debility, excessive thinness, general weakness, lack of physical energy and the usual ailments arising from nerve weakness and tissue wastage.

With the trade-package comes a leaflet discussing, in language that may be counted on to duly impress the unscientific mind with its profundity, "The Relation of Organic Phosphorus to the Human Machine." Numerous quotations from medical literature follow, all of which, so far as they have been checked, relate, in the original, to calcium glycerophosphate. Not that there is any hint in the advertising that this well-known drug is the preparation to which the quotations refer; the reader is left to infer that they refer to "Bitro-Phosphate."

Because of the number of inquiries that have been received, and the extensive advertising of "Bitro-Phosphate," the preparation was taken up for examination in the Association's Chemical Laboratory. The chemist's report follows:

CHEMIST'S REPORT

Bitro-Phosphate comes in the form of uncoated tablets weighing 0.355 Gm. each (about 5½ grains) and there are forty-two tablets in each package. The package sells for one dollar. The tablets, which had a somewhat bitterish saline taste and were odorless, slowly distintegrated in water but did not entirely dissolve. In dilute hydrochloric or dilute nitric acid the tablets dissolved readily with some effervescence. No chlorid, bromid, iodid, sulphate, phosphate, or hypophosphite could be detected by the ordinary tests. The solution in water or acid gave tests for calcium in abundance. The tablets on heating, gave off inflammable vapors and, when strongly heated, charred. The charred mass extracted with nitric acid gave the molybdate test for phosphate in abundance. This would indicate an organic phosphate. The U. S. P. tests for calcium glycerophosphate were applied to a solution of the tablet material in water and the tests were positive in every case. Six of these tablets when titrated by DuBois method are found to contain 1.9324 Gm. calcium glycerophosphate, or 0.322 Gm. (about 5 grains) per tablet.

The conclusion to be drawn from this examination is that Bitro-Phosphate is essentially a 5 grain tablet of calcium glycerophosphate.

Very simple! Calcium glycerophosphate can be purchased for $2.35 per pound. One pound of calcium glycerophosphate would make over thirty-three bottles of five-grain "Bitro-Phosphate" tablets, forty-two tablets to the bottle; thirty-three bottles of Bitro-Phosphate sell for $33.00! Does a profit of sixteen hundred per cent. come within the excess profit tax?

THE JOURNAL has discussed at different times the therapeutic value—or lack of value—of the glycerophosphates, and has shown the fallacy of the theory that organic phosphorus compounds are more readily assimilated than the inorganic phosphorus preparations. All that needs, further, to be said is that if the public wishes to take calcium glycerophosphate it may purchase it under its own name at a fraction of the price.

An interesting side-light on the Bitro-Phosphate business was disclosed when information regarding the Arrow Chemical Co. was sought. It seems that the Arrow Chemical Co. was started in January, 1917, by one Samuel Hugh McKean. In November, 1917, a certificate of trade-style was filed, showing that the present owner is one Elmer S. Prather, a brother-in-law of McKean. The names of both Prather and McKean loom large in the Propaganda department's files. Prather, for some years, seems to have traveled about lecturing on "suggestive therapeutics," going under the name of "Knowles," Later he is said to have been connected with one McIntyre in operating a mail order concern known as the "Metropolitan Institute of Science," in New York, which had the following officers:

F. T. McIntyre, D.S.T., President.
Prof. Elmer E. Knowles, Vice-President and Treasurer.
J. Alfred Moore, M.D., Corresponding Physician.
S. H. McKean, Secretary.

This institution sold "courses" in "Hindoo Methods of Hypnotism" and "Telepathy," also a "Complete $30 System of Personal Influence and Control, for $5.00"—to say nothing of the "Hypnotic Ball System." Finally the postoffice department got around to the "Institute" and it went out of business. This was in 1906. In 1909, "Elmer E. Knowles" was "president" of the "Psycho Success Club," which was operated from 400 St. Nicholas Ave., New York. This was the "most powerful mental organization the world has ever known"—Prof. Knowles said so. Those who sent in $1, or $5, or $10 (according to the ease with which the fool and his money were parted), for membership in this club, had to "pledge not to reveal the Mystic Formula or Harmony Key to any person who is not a member in good standing."

Those whose names got on the "Psycho Success Club" "sucker list," and who failed to "bite," received, after some months' time, a circular letter from the "Roxroy Studios," operated, not from New York, but from London, although the advertising was obviously for American consumption. Enclosed with the Roxroy letter, which by the way, offered an "extensive life reading" for a mere $2, was an advertising leaflet of the "International Institute of Beauty Culture," of 2236, 8th Ave., New York. It should also be said that those who received the follow-up system of the "Psycho Success Club" also got advertisements from the "Economy Supply Co." of 203 St. Nicholas Ave., New York, as well as a list of "Mrs. Knowles' Home Remedies," that were put out by the "Imperial Products Co." of 205 St. Nicholas Ave., New York. Failing to be caught by any of these, there came a letter, simulating a personal communication, from the "Universal Mail Order Institute," 2232, 8th Ave., New York, signed "Hugh McKean, Proprietor." This offered a "complete course on 'How to Conduct a Mail-Order Business,' and in addition, the 'Twenty Money-Making Ways.'"

In 1912 Prather seems to have been running a "school of hypnotism" in London. At that time London *Truth* (which delights in exposing shams and humbugs) had this to say about the concern:

> "Prather has recently come to London and opened a National Institute of Sciences in the Westminster Bridge Road, No. 258, over a tea shop. His expert figurehead rejoices in the name of Professor Elmer E. Knowles, and his advertisements announce that the National Institute has appropriated five thousand pounds towards a fund for the free distribution of the professor's new book, "The Key to the Development of the Inner Forces." . . . Prather makes a great to do about a Radio-Hypnotic Crystal, which cannot be so very active, since any one who calls at the National Institute can see two girls packing hundreds of them in boxes all day long just as if they were bits of glass, and seemingly none the worse for the experience. Prather charges twenty shillings for a six pound course of his instruction, with the crystal thrown in. . . . However, if any one really wants to be hypnotized either by advertisement or by post, a pound or two either way is of very small moment. It is not like being hypnotized on a platform where everybody sees what a fool the subject makes of himself."

Prather's activities seem to have been many and various. And apparently they have paid, for according to reports, he is estimated to be worth at least $150,000. Briefly tabulating, then, the different businesses with which Prather seems to have been directly or indirectly connected, we have:

"Metropolitan Institute of Sciences," New York: Sold mail-order courses in "magnetic healing," hypnotism, etc.

"Psycho Success Club," New York: Sold mail-order courses in hypnotism, palmistry and clairvoyance.

"Professor Cairo," Portsmouth, England: An advertising astrologer.

"National Institute of Science," London, England: Sold mail-order courses in hypnotism.

"Professor Roxroy," London, England: Alleged to make character delineation from hand-writing.

"Clay Burton Vance," Paris, France: Sold horoscopes.

"Universal Mail Order Institute," New York: Alleged course of instruction in how to run a mail-order business; specifically in selling "Luxor Hair Tonic," which the "Institute" furnished.

"Economy Supply Co.," New York: Advertising "Luxor Hair Tonic."

"Imperial Products Co.," New York: Sold "Mrs. Knowles' Home Remedies."

"International Institute of Beauty Culture," New York: Professed to teach "beauty culture."

"Fremont Mfg. Co.," New York: Said to have manufactured phonographs.

"Arrow Chemical Co.," New York: Sells "Bitro-Phosphate" and other nostrums.

Correspondence

THE DRAFTING AS A PRIVATE OF A LOYAL PHYSICIAN OF FOREIGN BIRTH

To the Editor:—A friend of mine, a young graduate with a fine manhood and loyalty, with splendid medical and surgical training, but with a foreign birth, writes me from the Columbus Barracks:

> Here I am, at last, in Uncle Sam's service, in a snugly fitting private's uniform. As you remember, I have been offering myself for service for the last year or more, in fact before the draft law was passed; and last month I went to Washington armed with my naturalization papers, protesting my loyalty, telling them that I was only 8 years old when I left my native country, and that I have lived in this country for the last sixteen years, was educated in its schools, trained in the spirit of its institutions, and that as I remembered our constitution, a naturalized citizen could aspire to any office but that of the President of the United States. I was turned down with the customary "Sorry, but can't help it." Last week I was drafted as a private. Oh, not that I mind to salute every sergeant and corporal that may condescend to look my way, but the queer fact that I was drafted while I offered myself fills me with some sort of sadness about the order of things. However, in these days we cannot and must not be at all particular and feel personal injustice as long as we are engaged in any capacity whatever in the grandest and holiest task that the world has ever been called on to perform—to punish a race which has broken loose from the moorings of civilization and humanity, a fit ally of the unspeakable Turk.

The philosophical and noble acquiescence of my friend, however, does not mitigate the flagrant inconsistency and injustice of his case, which is only an example of many hundreds. It is much above my comprehension. Hence, can a kindly soul tell me wherein the military advantage consists in drafting a physician and putting him into the trenches or in the medical service, but refusing a commission because of his foreign birth? If the life sacrifices of these men are acceptable and demanded, with what moral justification under the sun are they denied the consolation and the pride of their just honors?

A. H. Koumjian, M.D., Detroit.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

VOCATIONAL TRAINING FOR THE DISABLED

The Journal, August 3, page 399, contains an inquiry by H. A. A. as to schools where a crippled boy may receive vocational education. The American Red Cross Institute for Crippled and Disabled Men, 311 Fourth Avenue, New York, states that it was founded to help just such cases, as well as to make provision for the reeducation of disabled soldiers and sailors. There are classes in artificial limb making, mechanical drafting, monotype operating, oxyacetylene welding, jewelry making and motion picture operating. Training in these classes is given to disabled civilians free of charge. The institute, however, can furnish no boarding facilities to students, who must find accommodations in the city for themselves; therefore students are not urged to come from a distance for this training, although the institute gladly extends the opportunities it affords to all such as need them and are suitable for training.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ARIZONA: Phoenix, Oct. 1. Sec., Dr. Allen H. Williams, 219 Goodrich Bldg., Phoenix.

CALIFORNIA: Sacramento, Oct. 21-24. Sec., Dr. C. B. Pinkham, Butler Bldg., San Francisco.

COLORADO: Denver, Oct. 1. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

DISTRICT OF COLUMBIA: Washington, Oct. 8. Sec., Dr. Edgar P. Copeland, The Rockingham, Washington.

GEORGIA: Atlanta, Oct. 8-9. Sec., Dr. C. T. Nolan, Marietta.

IDAHO: Boise, Oct. 1-2. Sec., Dr. Ray H. Fisher, Rigby.

ILLINOIS: Chicago, Sept. 24-27. Mr. F. C. Dodds, Supt. of Registration, Springfield.

KANSAS: Topeka, Oct. 8-9. Sec., Dr. H. A. Dykes, Lebanon.

MICHIGAN: Lansing, Oct. 8-10. Sec., Dr. B. D. Harison, 504 Washington Arcade, Detroit.

MINNESOTA: Minneapolis, Oct. 1-4. Sec., Dr. T. McDavitt, 741 Lowry Bldg., St. Paul.

MISSOURI: Kansas City, Sept. 30-Oct. 2. Sec., Dr. George H. Jones, State House, Jefferson City.

MONTANA: Helena, Oct. 1. Sec., Dr. S. A. Cooney, Power Bldg., Helena.

NEW JERSEY: Trenton, Oct. 15. Sec., Dr. Alex. MacAlester, 438 E. State St., Trenton.

NEW MEXICO: Sante Fe, Oct. 14. Sec., W. E. Kaser, East Las Vegas.

NEW YORK: Albany, Buffalo, New York and Syracuse, Sept. 24-27. Mr. H. J. Hamilton, New York Dept. of Education, Albany.

OKLAHOMA: Oklahoma City, Oct. 8-9. Sec., Dr. J. J. Williams, Weatherford.

RHODE ISLAND: Providence, Oct. 3. Sec., Dr. B. U. Richards, 315 State House, Providence.

UTAH: Salt Lake City, Oct. 7-8. Sec., Dr. G. F. Harding, 405 Templeton Bldg., Salt Lake City.

Alabama July Examination

Dr. S. W. Welch, chairman, Alabama Board of Medical Examiners, reports the written examination held at Montgomery, July 9-12, 1918. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 21 candidates examined, 14 passed and 7 failed. Two candidates were licensed through reciprocity. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
University of Alabama	(1918)	75, 79.4, 80.7, 80.9, 83.2, 83.4, 84.5, 87.
Emory University	(1917) 75; (1918)	75.2
Northwestern University	(1902)	87.5
Johns Hopkins University	(1918)	86.6
Meharry Medical College	(1918)	75
Vanderbilt University	(1917)	76.3
FAILED		
University of Arkansas	(1918)	62.9
Chattanooga Medical College	(1907)	70.9
Meharry Medical College	(1917) 65.6; (1918)	65.6, 68.4, 69.3.
Memphis Hospital Medical College	(1913)	68.6

College	Year Grad.	Reciprocity with
LICENSED THROUGH RECIPROCITY		
Atlanta College of Physicians and Surgeons	(1911)	Georgia
University of Tennessee	(1901)	Tennessee

Arizona July Examination

Dr. Allen H. Williams, secretary of the Arizona Board of Medical Examiners, reports the oral and written examination held at Phoenix, July 2-3, 1918. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 11 candidates examined, 10 passed and 1 failed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Medical College of Alabama	(1905)	84.9
Denver & Gross College of Medicine	(1903)	83
Northwestern University	(1900) 94.3; (1911)	81.3
University of Illinois	(1914)	80.7
Johns Hopkins University	(1917)	81.7
St. Louis University	(1916)	94.7
Memphis Hospital Medical College	(1889)	85
Vanderbilt University	(1915)	79.8
School of Medicine and Pharmacy of Guadalajara	(1889)	91
FAILED		
Hahnemann Med. College and Hospital of Chicago	(1882)	44

One candidate, a 1918 graduate of Hahnemann Medical College of the Pacific, who formerly received an osteopathic license, received, on presentation of his medical degree, a license to practice medicine and surgery.

Colorado July Examination

Dr. David A. Strickler, secretary of the Colorado State Board of Medical Examiners, reports the written examination held at Denver, July 2, 1918. The examination covered 8 subjects and included 80 questions. An average of 75 per cent. was required to pass. Nineteen candidates, including 9 osteopaths, took the physician's and surgeon's examination, all of whom passed. Two candidates did not furnish satisfactory requirements; one candidate failed to take the examination; one candidate, an osteopath, was expelled for cheating, and one candidate withdrew his application. Ten candidates were licensed through reciprocity. One candidate received a license because of prolonged Indian service. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
University of Colorado	(1918)	79.1, 80.2, 81, 87.2, 87.4, 88.7, 90.5.
Chicago College of Medicine and Surgery	(1917)	84.9
Northwestern University	(1918)	81.6
St. Louis University	(1918)	82.1

College	Year Grad.	Reciprocity with
LICENSED THROUGH RECIPROCITY		
Columbian University	(1893)	Dist. Colum.
Rush Medical College	(1902) Iowa; (1915)	Illinois
Medical College of Fort Wayne	(1882)	Michigan
Kansas Medical College	(1904)	Kansas
University Medical College of K. C.	(1911)	Missouri
University of Nebraska	(1907)	Nebraska
Jefferson Medical College	(1903)	Penna.
Medico-Chirurgical College of Philadelphia	(1905) (1907)	Penna.

Book Notices

ALCOHOL: ITS ACTION ON THE HUMAN ORGANISM. Cloth. Price, 60 cents, net. New York: Longmans, Green & Co., 1918.

This little book represents a review of the present state of scientific knowledge on the action of alcohol on the human system. It has been prepared as a provisional basis for further research by an advisory committee appointed in November, 1916, by the Central Control Board (Liquor Traffic). The members of the committee were: Lord D'Abernon, G.C.M.G.; Sir George Newman, K.C.B., M.D.; Prof. A. R. Cushny, M.D., F.R.S.; H. H. Dale, M.D, F.R.S.; M. Greenwood, M.R.C.S.; W. McDougall, M.B., F.R.S.; F. W. Mott, M.D., F.R.S.; Prof. C. S. Sherrington, M.D., F.R.S., and W. C. Sullivan, M.D. Soon after it was appointed, the committee came to the conclusion that, as a starting point for further research, it was necessary to state as briefly as might be the present state of human knowledge on the action of alcohol. The book under review is the outcome of this decision. The conclusions presented are the unanimous judgment of the committee. In reaching them the authors, we are told, had no idea of taking sides with any existing opinions and have frankly admitted doubt when they felt unable, from the available evidence, to state definite conclusions. While the committee realizes the grave and widespread social evils that follow the excessive use of alcoholic beverages it has not allowed its physiologic findings in the present book to be influenced by social issues. The volume impresses one as being essentially sincere, impartial and cautious. While it is impossible in the brief limit of a review to give in full the conclusions of this committee, they may be thus summarized:

1. The main effects of alcohol, aside from those that follow its continued excessive use, are due to its action on the nervous system and, so far as any direct action is concerned, alcohol, when administered in moderate amounts at sufficient intervals and in diluted form, has no effect of any serious and practical account on the respiration, circulation, digestion or the muscular system.

2. The action of alcohol on the nervous system is essentially sedative and not stimulative—excepting possibly in its influence on the respiratory centers. Its assumed stimulative properties are illusory. They are, in fact, an effect of the narcotic influence of the drug which, by dulling the drinker's perception of unpleasant conditions and, by removing the control exercised by the higher nervous centers, renders him

less self-critical and makes him feel better and more efficient than he really is.

3. The objective effects of alcohol on the nervous system are to lower functional activity. A dose that produces no noticeable change in the skill of performing a simple act will impair the performance of an act demanding a more delicate coordination and control.

4. The narcotic effect of alcohol does not necessarily imply that it is valueless in all circumstances, for there is nothing intrinsically good about a stimulant or intrinsically bad about a narcotic. When an individual has to meet an emergency in which his highest powers of perception and judgment are needed, alcohol is not merely useless, it is positively and unequivocally detrimental. There are, however, emergencies in which the individual would be assisted by a relaxation, and here the sedative action of alcohol, at least so far as its *immediate effect* is concerned, may be advantageous. The committee thinks that possibly the value attributed to the rum ration given to those suffering the acute discomfort, cold and nervous strain inseparable from trench warfare may possibly be explained this way. It is also suggested that the reputation which alcohol has as a restorative in emergencies is probably not due to any direct stimulation of the nervous system or of the heart. Rather it is due to its sedative influence on the nerve centers, thus weakening the inhibition on the heart's action that follows in such cases and, by its narcotic influence on the higher levels of the brain, relieving pain and anxiety and increasing the general comfort.

5. Alcohol has food value and, unlike ordinary foodstuffs, does not require to undergo digestion before it can be taken up by the blood stream. The objections to its use as a food, however, except possibly in emergency conditions such as acute diseases where the assimilation of ordinary foods is more or less interfered with, are amply sufficient to condemn its use in health as a source of bodily energy. These objections are that it impairs the efficiency of the higher nerve functions and, unlike other foods, it is not stored in the body in altered form but remains as alcohol in the blood and organs until it is destroyed by combustion. As this oxidation process is gradual, the drug, if in sufficient amount, may seriously injure the tissues.

6. The use of alcohol to promote working efficiency is physiologically unsound, as the drug is not only useless or detrimental in its immediate effect, but in its ultimate result is also likely to be seriously injurious.

7. Believing that the majority of people who use alcohol take it, not because they imagine that it has any food value, but because its taste and immediate effects are agreeable, the committee is of the opinion that there are conditions under which the use of alcoholic beverages may be physiologically permissible. The question, of course, is dealt with wholly from the physiologic standpoint and does not take into consideration any of the problems of social evils, ethics or national economy. The committee holds that alcoholic liquors when so taken as to avoid the poison action of the drug may be considered physiologically harmless in the case of a large majority of normal adults. The precautions necessary to guard against the poison action are summed up practically in the propositions (*a*) that to avoid a continued action on the tissues, a sufficient interval should elapse between the times when alcohol is taken as will prevent the persistent presence of a deleterious amount of the drug in the body; (*b*) to prevent direct injury to the mucous membrane of the stomach, alcohol should not be taken in concentrated form and without food.

THE SERIOUSNESS OF VENEREAL DISEASE. By Sprague Carleton, M.D., F.A.C.S. Boards. Price, 50 cents. Pp. 67, with 26 illustrations. New York: Paul B. Hoeber, 1918.

This book consists of twenty-six illustrations showing the ravages of syphilis, with brief reports of from two to five lines concerning the history of each case. It closes with brief instructions for those having gonorrhea or syphilis. It was prepared primarily in a limited edition for the use of Base Hospital No. 48, with a view to use in prophylaxis education. This purpose it has no doubt served quite well.

Medicolegal

Against Joint Information for Unlawfully Practicing Medicine

(Durston et al. v. State (Tex.), 200 S. W. R. 524)

The Court of Criminal Appeals of Texas reverses a judgment of conviction of the two defendants, Durston and another, who were charged with practicing medicine without complying with the requisites of the statute with reference to obtaining a license, because the information charged the offense jointly against both defendants, on which ground its legality was challenged. The court says that, so far as it has learned, the exact question has not been reviewed in Texas; but, following the authorities of several other states, the court is constrained to hold that it was error to refuse to quash the information. It is not criminal to practice medicine, but it is unlawful to do so for pay without obtaining a license. A license authorized is personal to the individual. His practicing without obtaining it is a personal default, not one that he can commit in connection with another, and the prosecution for the default cannot be sustained under a joint charge.

Malpractice in Statements with Regard to Removal of Appendix Not Proved

(Rich v. King (Me.), 102 Atl. R. 704)

The Supreme Judicial Court of Maine orders a judgment to be entered for the defendant in this action for alleged malpractice in statements said to have been made by the defendant as to the removal of the plaintiff's appendix, and in not telling him that it had not been removed in an operation performed by the defendant at his hospital. The plaintiff alleged that he suffered much and was put to great expense by many attacks of pain in the abdomen during a period of some three years because he had been informed that his appendix had been removed, when in fact it had not been, for, with the understanding that the appendix had been removed, his physician could not determine the nature of his ailment, until finally another operation was performed. The declaration stated further that the plaintiff said it was the duty of the defendant to notify him that the appendix had not been removed; that the defendant did not so notify him; that it was an added duty of the defendant not to tell the plaintiff that he had removed the appendix from his body, when he had not removed it. But, as the court views it, the injuries alleged to have been suffered by the plaintiff seemed to be ascribed to an alleged express statement of the defendant that his appendix had been removed, when in fact it had not been removed, and was not based on the alleged omission to declare to him that the appendix had not been removed, and that it was still in his body.

The defendant, the court says, performed his operation in the presence of another physician. Both physicians said that a large abscess was found; that the intestine was so inflamed and the condition of the plaintiff so serious that extensive exploration was highly dangerous; that the appendix was not removed nor was any attempt made to remove it; and that pus was drained from the cavity of the abscess. The defendant stated that in the examination of the cavity of the abscess which he felt he could safely make he could not detect the presence of the appendix, and that, if he had, he should have removed it. Subsequent measures were such as provided for continued drainage and healing of the wound. The plaintiff admitted that no error was committed in what was done in the performance of the operation. Under the circumstances attending the operation, his statement that the defendant told him that the appendix had been removed was grossly improbable. The defendant was a surgeon of great skill and long experience. He had, then, no interest to state other than the truth. The plaintiff now has. But the plaintiff at the time he alleged the conversation occurred must have within twenty-four or forty-eight hours suffered surgical shock and the shock following the administration of ether, for which he was a bad subject. His mind may have not comprehended clearly what took place and was said, and he may have unconsciously intermingled what the defendant or the other physician or others truthfully told him with conclusions of his own and figments of his own imagination.

Again, the plaintiff and his wife testified to the effect that some two or three days after the operation, when the defendant was present, the conversation turned to a game of baseball in which the defendant had taken part, and the plaintiff remarked that he played when at school, and the defendant said, "You can play on the no-appendix team now." Both the plaintiff and his wife admitted that the defendant spoke in a "joking way," and the wife stated that the conversation was not of a serious nature. The court is clearly of the opinion that the statement of the defendant made in the manner in which it was made and in a conversation of such character should not be considered sufficient evidence to sustain the grave charge made in the declaration.

The court is clearly of the opinion that no breach of duty on the part of the defendant by reason of any statement made to the effect that the appendix had been removed, as alleged, was supported by the evidence. Nor does the court find it necessary to make any findings of law as to the duty of a physician and surgeon in the premises, but has assumed, without declaring, the law to be as the plaintiff claimed.

Society Proceedings

COMING MEETINGS

Am. Assn. of Obstetricians and Gynecologists, Detroit, Sept. 16-18.
American Association of Railway Surgeons, Chicago, Oct. 16-18.
American Public Health Association, Chicago, Oct. 14-17.
Delaware State Medical Society, Wilmington, Oct. 8.
Indiana State Medical Association, Indianapolis, Sept. 25-27.
Missouri Valley Medical Society, Omaha, Sept. 19-20.
New Mexico Medical Society, Albuquerque, Oct. 7-8.
Ohio State Medical Association, Columbus, Oct. 1-3.
Pennsylvania State Medical Society, Philadelphia, Sept. 23-26.
Vermont State Medical Society, Burlington, Oct. 10-11.
Virginia State Medical Society, Richmond, Oct. 22-25.
West Virginia State Medical Association, Harpers Ferry, Oct. 1-3.
Wisconsin State Medical Society, Milwaukee, Oct. 2-4.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Medical Sciences, Philadelphia

August, 1918, **156**, *No.* 2

1 *Recent Developments in Intestinal Bacteriology.* A. I. Kendall, Chicago.—p. 157.
2 *Frequency of Protozoic Enterocolitis in Middle West; Clinical Manifestations, Diagnosis and Treatment. F. Smithies, Chicago. —p. 173.
3 *Effect of Stimuli from Lower Bowel on Rate of Emptying Stomach. F. W. White, Boston.—p. 184.
4 *Primary Carcinoma of Vermiform Appendix. S. P. Reimann, Philadelphia.—p. 190.
5 *Two Cases of Suprarenal Disease. O. T. Osborne, New Haven, Conn.—p. 202.
6 Magnesium Sulphate Solutions in Treatment of Spastic Contractures of Rectum and Sigmoid Colon. H. W. Soper, St. Louis. —p. 205.
7 *Sarcoma of Heart. I. Perlstein, Chicago.—p. 214.
8 Cholelithiasis: Disturbances of Cholesterin Metabolism as Factor in Gallstone Formation. M. A. Rothschild and A. O. Wilensky, New York.—p. 239.
9 Lingual Tonsil: Goiter, Glossodynia and Focal Infection. G. Sluder, St. Louis.—p. 248.
10 Surgical Treatment of War Wounds. C. L. Gibson, New York. —p. 252.
11 Cerebrospinal Fever. F. Marino, Camp Meade, Md.—p. 270.

3. **Effect of Lower Bowel Stimuli on Emptying Stomach.**—The roentgen-ray method was used by White to study the effect of stimuli from the lower bowel on the rate of emptying of the stomach; the effect of mechanical filling and distention of the colon by enemata in men and cats; the effect of chemical irritation of the cecum in cats; the effect of diseases of the lower bowel in 120 cases of chronic colitis, tubercular ulceration and cancer of the colon, chronic and acute appendicitis and adhesions of the lower ileum and colon. His results all point the same way: (1) delay in emptying the stomach is the exception, not the rule, in lesions of the lower bowel; (2) a strong stimulus is needed from the lower bowel to slow the stomach, for it was found that the stomach emptied a barium meal within the normal time in some cases of ileal stasis of two or more days' duration, and in most cases with good sized twelve-hour residue in the ileum, also when the colon was distended with a large enema, also in most cases of chronic appendicitis and chronic inflammations and tumors of the colon.

Experiments on animals showed that when the colon was irritated by injections into the cecum variable results were obtained; intense irritation caused vomiting; less marked irritation caused either delay in emptying the stomach up to about twice the normal time or rapid emptying of the stomach and whole digestive tract; moderate or slight irritation had no effect. The results were not perfectly graded, evidently because of variable spasm. Marked delay in emptying the stomach is far more often the result of actual lesions about the pylorus than of reflexes from the bowel. Stomach symptoms in intestinal cases are not, as a rule, the result of slow emptying of the stomach.

4. **Primary Carcinoma of Vermiform Appendix.**—Three facts stand out very conspicuously in the study of the literature of this neoplasm. The condition has never been diagnosed clinically and a consideration of the symptoms which have been presented by the patients in whom the lesion has been found shows that nothing in any way suggestive of anything other than an ordinary acute or chronic appendicitis is presented. Second, the condition may give rise to extension and metastasis. Third, the condition may be present and yet not be evident on gross inspection either when the appendix is in situ or when it is in the pathologic laboratory. Reimann therefore believes that it follows that aside from symptoms which lead to its removal it should be removed whenever the abdomen is opened in its neighborhood, regardless of symptoms, for in many cases discovered no symptoms at all were given. Every appendix should be subjected to both careful gross and histologic examination. Reimann reports twelve new cases occurring in 10,651 specimens.

5. **Suprarenal Disease.**—One of the cases cited by Osborne is unusual because of the marked symptoms of insufficiency of the suprarenal glands, as shown by the unusual amount of pigmentation and the exceedingly low blood pressure. There was no history of fever. The lungs and other parts of the body were not involved in the tuberculous process. There were no digestive symptoms until the last few weeks of life. The man (34 years of age) died from the extreme weakness of his heart and the low blood pressure. The pulse pressure, Osborne says, was one of the shortest he ever noted, the difference between the systolic and the diastolic being, at the first observation, only five points. Under suprarenal it temporarily increased to thirty points. The second case was one that was unusually marked by the pigmentation deposits and unusually interesting because of the disappearance of the pigmentation under suprarenal treatment. The loss of muscular strength in both these patients, due to suprarenal deficiency, was very marked. Osborne is convinced that it cannot be attributed entirely to the low blood pressure, and therefore poor circulation; it is in part, at least, due to muscle weakness.

7. **Primary Sarcoma of Heart.**—Perlstein reports a case of primary sarcoma of the heart which originated in the subepicardial areolar tissue. The patient, a man, aged 43 years, complained of shortness of breath and cough, first noticed two weeks previously. He also had a slight irritation in the left side, thoracentesis withdrew bloody fluid. The patient had not had any pain to amount to anything during the course of the disease. The postmortem examination: Subepicardial

sarcoma of heart (mixed cell). Metastases into pericardial fat, pleura and mediastinal lymph glands.

American Journal of Ophthalmology, Chicago

August, 1918, **1**, No. 8

12 Pemphigus of Conjunctiva. R. Connor and C. A. Burkholder.—p. 545.
13 Quinin Poisoning, Its Ocular Lesions and Visual Disturbances. R. H. Elliot, London, England.—p. 547. To be continued.
14 Case of Neurofibromatosis of Orbit. C. A. Campbell, Bay City, Mich.—p. 560.
15 Case of Conjunctivitis of Fornix. J. S. Fernandez, Havana, Cuba.—p. 562.
16 Case of Homologous Corneal Transplant. A. Martin, Phoenix, Ariz.—p. 566.
17 Iridectomy for Optical Purposes. J. H. McKellar, Los Angeles.—p. 567.
18 Apparent Accommodation in Aphakia. W. Zentmayer, Philadelphia.—p. 570.
19 Ophthalmoplegia and Optic Neuritis; Report of Cases. F. A. Morrison, Indianapolis.—p. 571.
20 Case of Hole in Disk. C. B. Harwood, Houston, Texas.—p. 572.
21 Case of Bilateral Luxation of Lens. F. Allport and J. Smith, Chicago.—p. 573.

American Review of Tuberculosis, Baltimore

August, 1918, **2**, No. 6

22 National Tuberculosis Association in Time of War. C. L. Minor, Asheville, N. C.—p. 323.
23 Tuberculosis as an Army Problem. J. H. Pratt and L. Brown, Saranac Lake, N. Y.—p. 335.
24 *War and Tuberculosis. D. A. Stewart, Ninette, Man.—p. 357.
25 Tuberculosis and Soldier. T. McCrae, Philadelphia.—p. 372.
26 Pain in Chest with Special Reference to Pulmonary Tuberculosis. J. B. Hawes, 2d, Boston.—p. 380.

24. **War and Tuberculosis.**—So far as the British and Canadian armies are concerned, Stewart claims it can safely be said that the expected increase in tuberculosis has, fortunately, not occurred; that the bad effects of war, so far as this disease is concerned, seem to have been neutralized by the good effects of mobilization; and that a young man has less chance of breakdown with tuberculosis in the army than he had in prewar civilian life, and apparently much less in England than he would have in civilian life in time of war. The chief element in the etiology of army tuberculosis has undoubtedly been acute infections, especially infections of the upper respiratory tract. Men gathered from all parts of the country into crowded barracks were all exposed to the infections each brought. Measles, pertussis, scarlet fever, mumps, diphtheria, tonsillitis infected their thousands; but influenzas of all sorts, catarrhs of every variety, common colds and uncommon colds, familiar forms and trench forms of bronchitis infected their tens of thousands. They were universal in barracks, camp and trench. The whole army coughed. And these "colds" undoubtedly in many cases were but the prelude to the larger play. The diagnosis of tuberculosis has been made more difficult by war.

Annals of Otology, Rhinology and Laryngology, St. Louis

March, 1918, **27**, No. 1

27 Surgery of Tongue. J. C. Beck, Chicago.—p. 3.
28 Susceptibility to Infection Manifested by Remains of Incompletely Removed Tonsils. H. W. Loeb, St. Louis.—p. 103.
29 Method of Medicating Eustachian Bougies. L. M. Hurd, New York.—p. 114.
30 Location of Lateral Sinus from External Markings; Also, Approach to Mastoid Antrum, as Modified by Surface Markings. H. J. Prentiss, Iowa City, Iowa.—p. 116.
31 Occurrence of Nodules of Cartilage in Tonsil. J. Forman, Columbus.—p. 137.
32 New Operation for Collapsed Alae Nasi. O. Wilkinson, Washington.—p. 145.
33 Case of Purulent Leptomeningitis of Otitic Origin. D. Layman, Indianapolis.—p. 149.
34 Cases of Bilateral Abductor Paralysis of Vocal Cords. R. Butler.—p. 153.
35 Remote Results of Foci of Infection in Nose and Throat. J. B. Greene.—p. 160.
36 Removal of Foreign Bodies from Larynx, Disproving Previously Made Diagnosis. H. Hastings, Los Angeles.—p. 176.
37 Rhinoscopy. E. M. Holmes, Boston.—p. 179.
38 What Is Cause of Defective Orientation or Equilibration? L. R. Culbertson, Zanesville, Ohio.—p. 187.
39 Importance of Early Intubation and Use of Antitoxins in Membranous Laryngitis. A. C. Wolfe, Columbus.—p. 189.
40 Nasal and Nasopharyngeal Fibroma, with Reference to Multiplicity of Growths. G. M. Coates.—p. 191.
41 Lingual Abscess. J. A. Cavanaugh, Chicago.—p. 206.
42 Cases Illustrating Diagnosis of Intracranial Complications of Ear Disease Complications. G. W. Boot, Chicago.—p. 213.
43 Importance of Recognizing Relation of Ear Conditions to General System. G. E. Davis, New York.—p. 226.
44 Value of Results in Anacousia Depends on Local and General Condition of Person Who Is Deaf. G. de Parrel.—p. 230.
45 Rôle of Pseudodiphtheria Bacillus in Pathogenesis of Ear, Nose and Throat Diseases. H. McNaught, San Francisco.—p. 245.
46 Association of Ocular and Nasal Accessory Sinus Disease. G. O. Ring, Philadelphia.—p. 251.
47 Osteoma of Frontal Sinus; Report of Case. E. C. Sewall, San Franisco.—p. 275.
48 Clinical Ozena and Its Vaccine Treatment. H. Horn and E. A. Victors, San Francisco.—p. 288.

Boston Medical and Surgical Journal

August 15, 1918, **179**, No. 7

49 Hospital Standardization; Its Meaning. J. T. Bottomley, Boston.—p. 219.
50 Administration of Military Base Hospital and Its Comparison with Civil Hospital. C. Frothingham, Camp Devens.—p. 223.
51 Need of Systematic Teaching of Hospital Interns. E. H. Bradford, Boston.—p. 229.
52 Social Service and Follow-Up Work. R. M. Smith, Boston.—p. 233.
53 Hearing Test to Detect Malingering. J. F. Callahan, Brockton.—p. 236.

August 22, 1918, **179**, No. 8

54 The Massachusetts Tuberculosis Sanatoriums and What They Plan to Do. A. K. Stone, Framingham Center.—p. 255.
55 Rôle of County Tuberculosis Hospital in Massachusetts. O. S. Pettingill, Hebron, Me.—p. 259.
56 Local Municipal Tuberculosis Hospitals in Massachusetts. E. A. Locke, Boston.—p. 263.
57 Massachusetts Tuberculosis Dispensaries. J. S. Hitchcock, Northampton.—p. 269.
58 *Wound Shock and Vasomotor Center. W. T. Porter, Boston and E. Emerson, Providence.—p. 273.

58. **Wound Shock and Vasomotor Center.**—Further experimental evidence is detailed by the authors to prove that fat embolism of the vasomotor center is a frequent cause of wound shock. The demonstration of fat embolism of the vasomotor center as a cause of wound shock is as follows: (1) Excluding abdominal wounds, in which a hydrostatic fall in blood pressure may follow an invariable local injury to the largest vascular area in the body, the most frequent causes of shock in wounded soldiers are shell fracture of the femur and multiple wounds of the subcutaneous fat. (2) In fracture of the femur and in multiple wounds of the subcutaneous fat, considerable numbers of fat globules are found in the blood. (3) A quantity of fat much smaller than that known to circulate in the blood in the injuries most often followed by shock will produce shock when the nutrient vessels of the vasomotor region are stopped.

Bulletin of Johns Hopkins Hospital, Baltimore

August, 1918, **29**, No. 330

59 *Clinical Aspects of Peptic Ulcer; Roentgen Diagnosis in Seven Hundred and Forty-Three Cases. F. H. Baetjer and J. Friedenwald, Baltimore.—p. 177.
60 *Experimental Meningococcus Meningitis. C. R. Austrian, Baltimore.—p. 183.
61 *Blood Pressure in Amyloid Disease of Kidney. K. Hirose, Baltimore.—p. 191.

59. **Clinical Aspects of Peptic Ulcer.**—From studies on the many cases of peptic ulcer in which roentgen-ray examinations were made, Baetjer and Friedenwald believe that they are justified in concluding that the roentgen ray offers most valuable assistance to the diagnosis of peptic ulcer, and although this method is not yet sufficiently well developed to be relied on alone without entering into the clinical aspects of the disease, it is of the greatest diagnostic help in obscure cases. Positive findings are noted in about 84 per cent. of cases of peptic ulcers and in 79 per cent. of cases operated. In duodenal ulcer there is excessive hypermotility of the stomach with rapid evacuation of the contents, so that the greater portion is extruded within the first half hour; there is hypermotility of the duodenum with formation, usually, of a deformity which remains fixed in all of the examinations.

The diagnosis of gastric ulcer is dependent on two conditions, namely, the functioning of the stomach, and the finding of the filling defect. It is only when the filling defect is situated along the anterior surface of the stomach and along the anterior surface of the lesser and greater curvatures that it can be demonstrated. On the other hand, it matters not what the situation of the ulcer is, the functions of the stomach are materially affected. An excessive irritation from the ulcer causes hypermotility and a spastic condition of the pylorus, so that for the time being there is practically no expulsion of bismuth. It is only when the spasticity relaxes that a portion of the bismuth is expelled. In gastric ulcer, wherever its situation, the authors always look for a certain amount of retention of contents. There is always a more or less marked hour-glass formation. According to their observations the functional signs are often as important as the presence of the filling defect in arriving at definite conclusions, inasmuch as in 8 per cent. of the cases, although there were no defects found, the functional changes pointed definitely to ulcer.

The greatest difficulties arise in the diagnosis of complicated cases; that is, when adhesions are present. These so frequently mask the usual findings that it is often impossible to determine whether there is really an ulcer of the stomach at hand or a lesion of some other organ. When the ulcer is situated at or near the pylorus, signs of partial obstruction frequently aid in establihsing the diagnosis.

The roentgen ray affords an almost absolute means of differentiating between gastric and duodenal ulcer. By means of the roentgen-ray examination Baetjer and Friedenwald can generally rule out the presence of ulcer. They can determine approximately the degree of healing as well as recurrence of an ulcer which cannot be as certainly determined in any other way. Sufficient evidence can be obtained as to the extent and induration of the ulcer and degree of obstruction to guide, in a measure, as to the necessity of surgical intervention.

60. **Experimental Meningococcus Meningitis.** — Austrian found that the cerebrospinal canal can be infected by way of the blood stream. Though under normal conditions the presence of a bacteremia does not lead to the developent of meningitis, when a condition of hyperemia of the thecal vessels exists, meningeal inflammation may result. Neither when normal conditions are present nor when meningeal irritation has been induced do meningococci introduced into the nasal mucous membrane gain access to the meninges. The demonstration of meningococci in the nasal secretion is to be interpreted as evidence of the excretion of these organisms by this route, but the conclusion is not necessarily warranted that they find a direct portal of entry to the meninges by the same channel.

These observations seem important from an etiologic standpoint. They indicate the probability that epidemic cerebrospinal meningitis, as it occurs in man, is to be regarded as a metastatic disease developing in the course of a general infection, rather than as the evidence of a primary local disease. They do not necessarily indicate the portal of entry of the invader, nor antagonize the view that the cocci are taken into the body through the upper respiratory tract, a fact apparently established. The observation that meningococcal sepsis in rabbits is followed by the development of meningeal disease only when the meninges are not in a normal state is suggestive and may explain in part, at least, the occurrence of the disease in some of those exposed and its failure to develop in others in like contact with sources of infection.

61. **Blood Pressure in Amyloid Disease of Kidney.**—In a series of fifty-nine cases, examined by Hirose, the presence of amyloid in the kidneys has always been associated with chronic nephritis. It is impossible to determine whether the nephritis antedated the amyloid or was developed coincidentally with it. In forty cases in which measurements were given the kidneys were larger than normal, while in nine they were small and granular. In all but one of the fifteen cases in which the blood pressure was recorded it was found to be normal or below normal. In the one patient whose systolic pressure was 170 mm., the kidneys were rather large and there was no cardiac hypertrophy. Of the fifty-nine cases, ten showed cardiac hypertrophy, but only one of these was associated with small granular kidneys, and in none was high arterial tension noted. It appears from this that even if it be assumed that a persistent nephritis produced cardiac hypertrophy and hypertension, the advent of the amyloid-forming process must have reduced the blood pressure to a low point and may even have caused a retrogression in the size of the heart.

Colorado Medicine, Denver

August, 1918, **15**, No. 8

62 Diagnostic and Prognostic Significance of Albuminuria. W. T. Little, Canon City.—p. 190.
63 Social Insurance as Public Health Issue. J. M. Shapiro, Cleveland.—p. 197.
64 Asepsis and Antisepsis in Modern Dentistry. S. W. Schaefer, Colorado Springs.—p. 199.

Indiana State Medical Association Journal, Fort Wayne

August, 1918, **11**, No. 8

65 Occupational Neuroses. C. E. Cottingham, Indianapolis.—p. 297.
66 Case Simulating Brain Abscess of Upper Motor Zone Occurring as Sequel to Pneumonia: Operation; Death: Necropsy. G. W. McCaskey, Fort Wayne.—p. 302.
67 Ocular Diseases Due to Foci of Infection Adjacent to or Remote from Eye. S. A. Shoemaker, Bluffton.—p. 305.

Iowa State Medical Society Journal, De Moines

August, 1918, **8**, No. 8

68 Acute Abdominal Perforations. F. W. Cram, Sheldon.—p. 279.
69 Choice of Operation in Fractures. A. P. Stoner, Des Moines.—p. 283.
70 Medical vs. Surgical Treatment of Peptic Ulcer. S. G. Hands, Davenport.—p. 287.

Journal of Bacteriology, Baltimore

May, 1918, **3**, No. 3

71 Apparent Close Relationship Between B. Pertussis and B. Bronchisepticus. N. S. Ferry and A. Noble, Detroit.—p. 193.
72 *Growth of Bacteria in Protein-Free Enzyme-Digestion and Acid-Digestion Products. H. C. Robinson and L. F. Rettger, New Haven, Conn.—p. 209.
73 *Characteristics of Bacteria of Colon Type Occurring in Human Feces. L. A. Rogers, W. M. Clark and H. A. Lubs.—p. 231.
74 Classification of Colon-Cloacae Group. M. Levine, Ames, Iowa.—p. 253.
75 Fowl Cholera: Toxins of Bacillus Avisepticus. P. Hadley.—p. 277.
76 Lactose Fermenting Yeast Producing Foamy Cream. O. W. Hunter.—p. 293.
77 Classification and Nomenclature of Bacteria. R. E. Buchanan, Ames, Iowa.—p. 301.
78 Early Instructors in Bacteriology in United States. E. G. Hastings and C. B. Morrey.—p. 307.

72. **Growth of Bacteria in Protein-Free Products.**—Numerous cultural tests were made by Robinson and Rettger, with opsin as the chief and, as a rule, the only source of nitrogen in the medium. Cultural studies were also carried on with protein-free acid-digestion products of proteins. The opsin was obtained from Paris in small metal capsules. In its original state it resembles highly concentrated commercial meat extract, although much lighter in color. It dissolves readily in water, yielding a brown but perfectly clear solution which is easily and completely decolorized by filtration through animal charcoal. The protein-free enzyme-digestion production opsin serves as an excellent culture medium for both pathogenic and nonpathogenic bacteria. Practically all of the many organisms employed grew as well or better in opsin than in Witte's peptone. The cultural characters on the two mediums were in general the same. With the exception of the diphtheria group, the different organisms remained viable as long on opsin as on the standard peptone-meat infusion medium.

The decomposition products of casein, lactalbumin and edestin obtained by acid hydrolysis were also employed as culture mediums. Of these the hydrolyzed casein gave the best results, but it was inferior to the opsin. The edestin product was the least satisfactory. It is highly probable that in the hydrolysis of these proteins with hydrochloric acid the treatment is sufficient to destroy many of the intermediate decomposition products which serve so admirably as food for micro-organisms. Bacteria do not require proteins, even in minute quantities, to carry on their normal cultural development, but obtain their sustenance from less complex substances, as for example the amino-acids and perhaps some of the simpler polypeptids.

73. **Bacteria of Colon Type in Human Intestine.**—A collection of 177 cultures of the colon aerogenes type was made by Rogers and his associates from human feces. These were examined for pigment formation, indol production, liquefaction of gelatin, acid fermentation of glucose, lactose, sucrose, raffinose, melibiose, arabinose, inulin, mannitol, dulcitol, adonitol and glycerol, the methyl red test, the carbinol or Voges-Proskauer reaction and the anaerobic production of gas from glucose as determined by exact methods. A tentative scheme of classification for the typhoid colon group is presented in which the primary divisions are based on the nature of the metabolism as indicated by the gases evolved. The gas analysis of a few available cultures of the paratyphoid group gave a gas volume and ratio agreeing with that of the colon type.

Journal of Biological Chemistry, Baltimore

August, 1918, **35**, No. 2

79 *Autolysis of Animal Tissues. K. G. Dernby, New York.—p. 179.
80 Purin Metabolism of Dalmatian Coach Hound. H. G. Wells, Chicago.—p. 221.
81 New Form of Colorimeter. J. C. Bock and S. R. Benedict, New York.—p. 227.
82 *Rapid Method for Determination of Iron in Small Quantities of Blood. L. Berman, New York.—p. 231.
83 Determination of Buffer Effects in Measuring Respiration. W. J. V. Osterhout, Cambridge, Mass.—p. 237.
84 *Studies in Calcium and Magnesium Metabolism. Effect of Acid and Other Dietary Factors. M. H. Givens, New Haven, Conn. —p. 241.
85 *Properties and Composition of Oocytin. G. W. Clark, Berkeley, Calif.*—p. 253.
86 Histidin and Carnosin. Synthesis of Carnosin. L. Baumann and T. Ingvaldsen, Iowa City, Iowa.—p. 263.
87 Oxidation Product of Creatin. L. Baumann and T. Ingvaldsen, Iowa City, Iowa.—p. 277.
88 Reduction of Aldehyds to Corresponding Alcohols. Reduction of Heptylic Aldehyd (Oenanthol). P. A. Levene and F. A. Taylor, New York.—p. 281.
89 Cephalin. Hydrocephalin of Egg Yolk. P. A. Levene and C. J. West, New York.—p. 285.
90 Formation of Unsaturated Acids in Animal Organism. Behavior of p-Methoxyphenylpropionic Acid in Organism of Rabbit. I. Matsuo, Kiota, Japan.—p. 291.
91 *Food Value of Eulachon. M. R. Daughters, Corvallis, Ore.—p. 297.
92 Efficiency of Maize Protein in Adult Human Nutrition. H. C. Sherman and J. C. Winters, New York.—p. 301.
93 *Effect of Heat on Citric Acid Content of Milk. Isolation of Citric Acid from Milk. H. H. Sommer and E. B. Hart, Madison.—p. 313.
94 Formation of Oxyphenyllactic Acid in Animal Organism and Its Relation to Tyrosin Catabolism. Y. Kotake, Osaka, Japan.—p. 319.
95 Relation Between Nutrition and Formation of Kynurenic Acid From Tryptophane. Z. Matsuoka, Osaka, Japan.—p. 333.
96 Decomposition of Muconic and Adipic Acids in Animal Body. Y. Mori, Osaka, Japan.—p. 341.
97 *Experiments on Utilization of Nitrogen, Calcium, and Magnesium in Diets Containing Carrots and Spinach. H. B. McClugage and L. B. Mendel, New Haven, Conn.—p. 353.
98 Relation of Quality of Proteins to Milk Production. E. B. Hart and G. C. Humphrey, Madison, Wis.—p. 367.
99 Method for Separation and Quantitative Determination of Lower Alkylamines in Presence of Ammonia. F. C. Weber and J. B. Wilson, Washington, D. C.—p. 385.
100 Inhibition of Foaming. C. H. Fiske, Cleveland.—p. 411.

79. **Autolysis of Animal Tissues.**—The proteolytic enzymes of liver, spleen, pancreas, and leukocytes and of the mucous membrane of the stomach have been studied by Dernby. In all of these tissues it has been possible to demonstrate the existence of pepsin-like enzymes, which split native proteins to peptones but not further, and for whose action the optimal hydrogen ion concentration in all cases is at about $p_H = 3.5$. This enzyme cannot act in alkaline or even neutral solutions. It has also been possible to show that in all of these tissues there are proteolytic enzymes of the type of trypsin or erepsin that attack only peptones or peptids, and split them into amino-acids. The optimal hydrogen ion concentration for all these enzymes seems to be about $p_H = 7.8$ (from 7.6 to 8.0), and their action is checked in slightly acid solution. Both types of proteolytic enzymes occur in all the tissues studied. In some of them, however, one or the other of the enzymes has been predominant over the others, as the pepsin in the stomach and the trypsin in the pancreas. Unlike the less specialized enzymes, pancreatic trypsin and gastric pepsin can easily be extracted from the cells.

82. **Method for Determination of Iron in the Blood.**—In the method described by Berman the iron held in combination in fluid blood is split off by the action of concentrated hydrobromic acid. The iron is oxidized to the ferric condition and the organic matter is destroyed by potassium permanganate. The resultant solution is mixed with a solution of ammonium sulfocyanate in water and acetone and the color is compared with that of a standard iron solution similarly treated. The ashing process is eliminated, and a complete determination may be made in ten to fifteen minutes.

84. **Calcium and Magnesium Metabolism.**—As a result of new experiments Givens is able to confirm his previous statement that ingested hydrochloric acid is without marked influence on the calcium and magnesium metabolism of the dog. The previously reported increased urinary elimination of calcium after acid consumption has been observed anew; but the absolute amount of this increase was not sufficient to affect to any noticeable degree the calcium balance.

91. **Food Value of Eulachon.**—Eulachon is an Indian name given to a species of marine fish found along the Pacific Coast from Oregon to Alaska. The eulachon is related to the smelt and it is often miscalled by this name. In food value the eulachon is equal to the salmon. It contains a higher percentage of fat than the salmon and in flavor is considered superior.

93. **Effect of Heat on Citric Acid Content of Milk.**—Sommer and Hart confirm the findings of Scheibe and Henkel; namely, that cow's milk does contain citric acid. The amount found was approximately 0.2 per cent. of the milk, or 2 per cent. of the milk solids. Citric acid is not destroyed in the heating of milk even in the autoclave at 15 pounds pressure for one hour, nor is it changed to an insoluble form on heating.

97. **Experiments on Utilization of Nitrogen in Diet.**—Metabolism experiments made by McClugage and Mendel showed that when carrots and spinach were added to the diets of dogs the nitrogen was not well utilized; the calcium in milk was better utilized than that in calcium carbonate; the calcium in spinach and carrots was poorly assimilated as compared with the calcium in milk. The authors believe that the conclusion seems justified that green vegetables should not be used extensively as a substitute for milk as the dietary source of calcium.

Journal of Cutaneous Diseases, Chicago

September, 1918, **36**, No. 9

101 *Bruck's Nitric Acid Reaction with Serum and Cerebrospinal Fluid in Syphilis. I. Toyama and J. A. Kolmer, Philadelphia.—p. 429.
102 Chemical Changes in Subcutaneous Fat in Sclerema Neonatorum. C. S. Smith, Chicago.—p. 436.
103 *Treatment of Syphilis at Camp Travis. W. H. Guy, Pittsburgh. —p. 441.
104 *Castor Oil. D. W. Montgomery, San Francisco.—p. 446.

101. **Bruck's Reaction with Serum and Cerebrospinal Fluid in Syphilis.**—Toyama and Kolmer applied Bruck's test with the serums of 100 persons, the majority of whom were under treatment for syphilis. Wassermann and Bruck tests with ninety-four serums (the Bruck tests being conducted with fresh active serums) yielded similar results with sixty-five serums, or about 70 per cent. All of the positive reactions with both tests occurred with the serums of persons manifesting the lesions of the secondary and tertiary stages of syphilis and undergoing treatment with arsphenamin (arsenobenzol of the Dermatologic Research Laboratories). With the serums of twenty-three persons, or about 25 per cent., the Wassermann tests were negative and the Bruck tests positive; eight of these serums were from persons regarded as nonsyphilitic and the balance (fifteen) from persons in the secondary and tertiary stages of syphilis undergoing vigorous treatment with arsphenamin and yielding positive

Wassermann reactions on admission to the clinic and prior to the time when Bruck tests were made. According to these results, therefore, the Bruck test was found to yield presumably about 8 per cent. falsely positive reactions; also that the property of syphilitic serum responsible for the Bruck test probably persists under treatment for a longer period than the reagin or Wassermann antibody. With the serum of six persons, or about 6 per cent., the Wassermann tests were positive and the Bruck tests regarded as negative; all of these serums were from persons presenting the lesions of the secondary and tertiary stages of syphilis on entering the clinic and undergoing active treatment with arsphenamin. The results of Bruck tests conducted with eighty-nine serums in the fresh active state and again after inactivation (heating) showed similar results in 85 per cent.; in 13 per cent. the reactions were positive with active and negative with inactive serum; all serums were from cases of secondary and tertiary syphilis undergoing treatment. It would appear, therefore, that active serum is better adapted for the Bruck test than inactivated serum.

103. **Treatment of Syphilis at Camp Travis.**—Routine treatment comprises comparatively intensive courses of arsphenamin (salvarsan) or its equivalent with mercury, the two drugs being used in conjunction. An arsphenamin (salvarsan) injection and mercurial treatment are given each week for ten weeks, after which the patient is given a complete therapeutic rest for five weeks. Then his physical examination and the Wassermann test are repeated; another course of treatment is then started, and so on until the Wassermann reaction becomes and stays negative. The arsenobenzol brand of arsphenamin has been the arsenical preparation most used. The gravity method of administration is used, dosage being determined at the rate of 0.1 gm. for each 30 pounds of body weight. About 400 cases of syphilis have been handled.

104. **Castor Oil.**—The main facts for a dermatologist to remember about castor oil, Montgomery says, are (1) its solubility in alcohol, and (2) the use of hot castor oil as a solvent for salicylic acid.

Journal of Nervous and Mental Disease, Lancaster, Pa.

August, 1918, **48**, No. 2

105 Pathology of Human and Experimental Poliomyelitis. H. S. Howe, New York.—p. 97. To be continued.
106 Familial Progressive Muscular Atrophy in Adults. A. S. Hamilton, Minneapolis.—p. 127.

Kansas Medical Journal, Topeka

August, 1918, **18**, No. 8

107 Responsibility of Profession Toward Disabled Soldier. G. C. Robinson, St. Louis.—p. 185.
108 Care and After-Treatment of Surgical Cases. J. A. Fulton, Kansas City, Kan.—p. 190.
109 Case Studies of One Hundred Inmates of Kansas State Industrial Farm for Women. S. L. Axford.—p. 193.

Laryngoscope, St. Louis

August, 1918, **28**, No. 8

110 Primary Principles of Technic of Plastic Surgery of Face. I. Frank, Chicago.—p. 565.
111 Operation for Bony Occlusion of Posterior Nares. L. E. White, Boston.—p. 571.
112 Radical Mastoid Operation; Indications, Technic and Results. J. M. Smith, New York.—p. 584.
113 Bacteriology of Tonsil Crypts. O. H. Maclay, Chicago.—p. 598.
114 Hypophysis Cerebri and Its Morphologic Influence. F. P. Lewis, Buffalo.—p. 60.
115 Medical Profession and Deaf. L. I. Morgenstern, New York.—p. 612.
116 *New Ear Test for Malingering. F. F. Teal, Lincoln, Neb.—p. 615.
117 Technic of Perineural Anesthesia for Radical Surgery of Maxillary Sinus. L. Gatewood, New York.—p. 616.

116. **New Ear Test for Malingering.**—In uncovering the dishonesty of "slackers" who claim to be deaf, Teal has used the following test for which he claims priority. The test is of service in unilateral catarrhal deafness only, but as this comprises the greater class of ear malingerers it is exceedingly useful. The person is blindfolded and in a friendly, helpful manner, told that if he is really deaf there is no disposition to overlook it. But he is also warned that if he tries to show dishonesty in the test, he is sure to be "tripped up" and his veracity doubted. Air conduction is tested and of course is negative. The Weber test is then used and usually (though reluctantly) the man hears the fork in the deaf ear. Bone conduction over the mastoid is next tested and again he admits hearing the fork. He is then commended for his answers and assured that he answered as he should. The last and real test is now used. After stating that the last test (bone conduction) will be repeated a nonvibrating fork (or lead pencil, flat end) is placed over the mastoid to make the man think he is being tested in the same manner, but at the same time a vibrating fork is brought up close to the auricle with the other hand to test the air conduction. If he is simulating deafness he will answer that he hears the fork (under the impression that he hears the sound through the bone) and the fact of a normal path of air conduction is established. If he is really deaf, he will not hear the vibrating fork. Teal uses for this test a Hartman's "C" fork.

Medical Record, New York

August 24, 1918, **94**, No. 8

118 Relationship of Oral Sepsis to Systemic Disease, and Its Bearing on Treatment: Cases. H. B. Anderson, Toronto.—p. 311.
119 Surgery in Its Relation to Psychoses and Psychoneuroses. R. T. Morris, New York.—p. 315.
120 Drug Addiction and Its Treatment. J. Diner, New York.—p. 316.
121 Training of Physicians for Public Health Service. C. E. McCombs and E. H. Lewinski-Corwin, New York.—p. 319.
122 Psychic Element as Important Factor in Development and Treatment of Peptic Ulcer. J. Kaufmann, New York.—p. 324.
123 Hysteria vs. Neurasthenia. S. Block, Brooklyn.—p. 326.
124 Broadening Field of Mental Medicine. W. B. Cornell, New York.—p. 329.

Medicine and Surgery, St. Louis

May, 1918, **2**, No. 5

125 Recurring Tetanus. K. Speed, Chicago.—p. 499.
126 Surgical Treatment of Unilateral Renal Tuberculosis; Importance of Early Diagnosis. H. L. Kretschmer, Chicago.—p. 504.
127 Requirements of Successful Hemorrhoidectomy, and How They Are to Be Met. A. A. Landsman, New York.—p. 513.
128 Scope of Local Anesthesia. T. O. Burger, San Diego.—p. 518.
129 Orthopedic Diagnosis. J. K. Young, Philadelphia.—p. 524.
130 Fractures of Astragalus. J. A. Brooke, Philadelphia.—p. 530.
131 Two Cases of Fracture of Cervical Vertebra. E. G. Beck, Chicago.—p. 534.
132 Rectal Surgery Under Local Anesthesia. R. E. Farr, Minneapolis.—p. 540.

Nebraska State Medical Journal, Norfolk

August, 1918, **3**, No. 8

133 Surgical Successes and Failures. A. D. Dunn, Omaha.—p. 235.
134 Lymphatic Drain of Nose and Throat with Its Relation to Focal Infections. W. P. Wherry, Omaha.—p. 237.
135 Bone Surgery; Report of Cases. C. H. Breuer, Lincoln.—p. 242.
136 Pelvic Conditions Producing Bladder Symptoms. M. Emmert, Omaha.—p. 247.

New Jersey Medical Society Journal, Orange

August, 1918, **15**, No. 8

137 Is It Good Practice for Surgeon to Perform Visceral Exsections and Resections while Viscera Are Inflamed? P. A. Harris, Paterson.—p. 257.
138 Prostate Question. S. R. Woodruff, Bayonne.—p. 263.
139 Modern Aspects of Neurologic Surgery. H. G. Dunham, New York.—p. 268.

New York Medical Journal

August 24, 1918, **108**, No. 8

140 Nephritis. T. Howard, Brooklyn.—p. 313.
141 Rational Treatment of Chronic Nephritis. A. S. Blumgarten, New York.—p. 316.
142 Two Cases of Measles. J. R. Graham, New York.—p. 322.
143 Advantages of Home Treatment in Tuberculosis. I. E. Gluckman, New York.—p. 323.
144 Protein Treatment of Psoriasis. E. Van Ness Van Alstyne, New York.—p. 326.
145 Spanish Influenza. E. E. Cornwall, Brooklyn.—p. 330.
146 Statue of Edward Livingstone Trudeau. S. A. Knopf, New York.—p. 330.
147 Hospital Ship "Mercy." N. J. Blackwood.—p. 332.
148 Reeducation of Disabled Soldiers at Bombay. D. C. McMurtrie, New York.—p. 336.

Survey of Head Surgery, Washington, D. C.

September, 1918, **1**, No. 2

149 Dark Field Study of Five Cases of Pseudomembranous Oral Infection Diagnosed Clinically as Vincent's Angina, at Base Hospital, Fort Dodge, Iowa. A. S. Brumbaugh, Camp Dodge, Iowa.—p. 45.

150 Case of Impacted Fourth Molar. H. H. Braxton, Camp Hancock, Ga.—p. 49.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Annals of Tropical Medicine, Liverpool

July, 1918, **12**, No. 1

1 Cysts of Common Intestinal Protozoa of Man. J. R. Matthews.—p. 17.

2 Cysts of Entameba Histolytica and of Entameba Coli. A. M. Smith.—p. 27.

3 *Studies in Treatment of Malaria. Oral Administration of Quinin Sulphate Ninety Grains on Two Consecutive Days Only, in Simple Tertian Malaria. J. W. W. Stephens and others.—p. 71.

4 Strongylidae in Horses. W. Yorke and J. W. S. Macfie.—p. 79.

5 Id. W. Yorke and J. W. S. Macfie.—p. 91.

6 Polypneustic Lobes in Larvae of Tsetse-Flies (Glossina) and Forest Flies (Hippoboscidae). R. Newstead.—p. 93.

3. **Treatment of Malaria.**—In a series of eighty-nine cases treated by Stephens and his associates with quinin sulphate in solution, 90 grains (six doses of 15 grains each), on each of two consecutive days, at least eighty-four (94 per cent.) relapsed. A parasitic relapse occurred in twelve to fifty-three days, average eighteen days. In three cases there was no parasitic relapse within an observation period of sixty days. One patient was discharged on the twenty-seventh day, the second on the fortieth day. In sixty-four cases true febrile relapses occurred in thirteen to fifty-four days. Two cases relapsed parasitically on the sixteenth and thirty-ninth days; parasites were not found again and there was no febrile relapse up to the eighty-fifth and seventy-third days, respectively. A number of patients presented symptoms of quinin poisoning, for instance, deafness, giddiness, vomiting, tremors, dimness of vision. One patient became temporarily blind. In all cases unfavorable symptoms disappeared within two to three days.

Archives of Radiology and Electrotherapy, London

July, 1918, **23**, No. 2

7 Treatment of Cases with Injury to Peripheral Nerves. N. H. M. Burke.—p. 34.

British Medical Journal, London

August 3, 1918, **2**, No. 3005

8 Significance of Fats in Diet. E. H. Starling.—p. 105.

9 Treatment in Toxemias of Pregnancy. G. I. Strachan.—p. 108.

10 *Malaria and Diseases of Eye. J. Kirk.—p. 110.

11 Operation for Reconstruction of Urethra in Cases of Severe or Impermeable Stricture. J. Guthrie.—p. 111.

12 Influenza Epidemic in Camp. C. Averill, G. Young and J. Griffiths.—p. 111.

10. **Malaria and Diseases of Eye.**—Kirk urges that in military operations in tropical countries in all cases of chronic eye trouble latent errors of refraction should be looked for. Their correction will in many cases cure or alleviate greatly the condition even though the error may be a small one.

Lancet, London

August 3, 1918, **2**, No. 4953

13 *Tuberculosis: Colony Treatment and After-Care. P. C. Varrier-Jones and G. S. Woodhead.—p. 133.

14 Colonies for Consumptives. N. D. Bardswell.—p. 137.

15 Rapid Cure of Hysterical Symptoms in Soldiers. A. F. Hurst and J. L. M. Symns.—p. 139.

16 Routine Use of Spinal Analgesia in Gynecology. N. M. Bey.—p. 141.

17 *Two New French Methods for Staining Blood Films and Blood Parasites. L. Tribondeau.—p. 142.

18 Isolation of Dysentery Bacilli from Feces. H. Whitehead and J. Kirkpatrick.—p. 143.

13. **Colony Treatment and After-Care of Tuberculosis.**—Directors of sanatoriums find that ex-soldier patients discharge themselves even before the end of the regulation three months. The reasons for this are usually well founded. First, the temperament of the patient is such that he cannot accommodate himself to institution life. Second, patients sometimes discharge themselves owing to domestic or home difficulties. The authors suggest as a remedy: Let the patient, instructed in a trade which if not his own is closely allied to it, realize that while undergoing his treatment he is being trained for a better berth, a more highly remunerative job. It is the waste of time which the patient imagines is going on during his stage at the sanatorium to which he so strongly objects. Experience gained at the Bourn Colony and at Papworth Hall goes far to show that the mental attitude of the patient is materially improved by useful occupation, the nearer to his own trade the better, while it is found that with time and care, which assuredly are never wasted, there is no insuperable difficulty in grading any kind of work as may be desired.

The combination of sanatorium treatment (perhaps the term "colony treatment" is to be preferred) and industrial work is a step in the right direction. If, ask the authors, we can bring about the arrest of the disease while the patient is carrying on his own trade, have we not solved, partially at any rate, the problem which we set out to solve? On the colony estate at Papworth are at the present time families whose bread winners are consumptives, with tubercle bacilli in their sputum, who by means of the state subsidy—a pension—are carrying on their original trade under ideal conditions—happy, contended, and earning their own livings. A concrete proposition has been placed before these men, and they have not hesitated to grasp it and avail themselves of what is its best feature—the shielding of the patient from the keen competition of the outside world.

It has been hinted that the colony is admirably suited to the development of slackers—an idlers' paradise. A consumptive patient with numerous tubercle bacilli in the sputum can never be set down as a slacker. He is definitely diseased. There can be no question of malingering. The proof of the presence of the disease can be demonstrated. The oftrepeated mistake of accusing the consumptive of slackness is a sure road to disaster. With all the good will in the world he is unable to do a full day's work. It must not be expected of him. Once the presence of the bacillus is ascertained and the diagnosis established the greatest caution must be exercised in dealing with so-called slackness, for be it remembered that the consumptive is a strange psychologic phenomenon, and as a rule is ready to do more work than is good for him rather than too little. The patient far from slacking takes pride in showing how well he can do his work. The more advanced the disease—within, of course, well-defined limits—the more anxious is he to carry on. The exceptions, few in number, have to be dealt with specially.

17. **New Methods for Staining Blood Films and Blood Parasites.**—These two methods are related to the well known methods of Leishman and provide efficient substitutes for the secret processes of Giemsa and other German writers. Of the two methods, one (neutral solution of eosinate of methylene blue converted by ammonia) is more rapid in execution and gives more complete results, but it requires very pure and neutral distilled water. When good distilled water is not available this second method (neutral solution of eosinate of natural methylene blue and alkaline solution of eosinate of methylene blue converted by ammonia) is preferable to the first; it is less delicate. The method of preparation and use of these stains is described in detail.

Practitioner, London

August, 1918, **101**, No. 2

19 Tooth Impacted in Secondary Bronchus of Left Lung; Removed by Lower Bronchoscopy. S. Thomson.—p. 61.

20 *Method of Reducing Dislocations of Shoulder Joint. P. Turner.—p. 75.

21 Problem of Dyspeptic Neurasthenic. E. L. Ash.—p. 77.

22 Prophylaxis of Fundamental Predisposing Influences of Neurasthenia Pura and Preneurasthenic State. S. H. Bennett.—p. 83.

23 Hysteria as Seen at Base Hospital. J. L. M. Symns.—p. 90.

24 Hysterical Paralysis of Long Standing. L. Scott.—p. 97.

25 *Diagnostic Significance of Hemoptysis. E. G. Glover.—p. 100.

26 Management of Epidemic of Diphtheria. F. H. Kelly.—p. 110.

20. **Method of Reducing Dislocations of Shoulder Joint.**—A number of cases, both recent and oldstanding (the longest interval between the injury and the treatment being twenty-four days) were treated by Turner by the following method: The patient is anesthetized lying on his back on an operating table or on a convenient couch. The surgeon now rolls up an ordinary washing towel and loops this round the inner side of the injured arm, just below the axillary folds, so that the free ends pass outward at right angles to the long axis of the body. The loop can equally well be made from a length of flannel bandage 3 inches in width. As soon as the patient is anesthetized an assistant grasps the forearm on the injured side and, without moving the arm from the patient's side, applies extension strongly in a direction parallel to the long axis of the patient's body. At the same time the anesthetist, whose hands are now free, makes counter extension by slipping his fingers into both of the patient's axillae, while the surgeon, grasping the free ends of the loop, pulls steadily in an outward direction. The extension, counter extension and external traction should be made simultaneously and steadily, as well as strongly, but without jerking. The head of the humerus enters the glenoid cavity at once with the characteristic click, and the arm is then bandaged to the patient's side.

Turner has tried this method in about twelve cases, recent and old, in which other methods had been tried, in some on two or three occasions without success, as well as in a few recent cases as the method of choice. In every case the dislocation has been reduced at once and without difficulty. All cases have been of the subcoracoid or the subclavicular varieties, but Turner sees no reason why the other less common varieties should not be reduced in the same way, provided that there is no fracture. The principle of the method is that the downward traction draws the head down to the level of the rent in the capsule, while the outward traction pulls it through the rent into the glenoid cavity. Its success, where other methods have failed, depends probably on the stronger and more direct outward traction to the upper part of the humerus.

25. **Diagnostic Significance of Hemoptysis.**—Briefly, the significance of hemoptysis, as Glover sees it, is as follows: While slight hemoptysis is one of the commonest forms of bleeding in pulmonary tuberculosis, nontuberculous hemoptysis is also most commonly slight. The number of slight nontuberculous hemoptyses is very large, and in any case, even when a tuberculous lesion is the cause of bleeding from the lung, rapid arrest often occurs. When the signs are as a whole of doubtful import, it is an open question whether a slight hemoptysis is indicative of active disease or not, or for that part of it whether it is indicative of tuberculosis at all. On the other hand, when a moderately large or a severe hemoptysis takes place and other gross causes are excluded, the probabilities are that the lesion is tuberculous and, in most instances, actively evolutive, the exceptions being cases of rapidly healing or abortive tuberculosis. This, however, cannot be ascertained without the employment of specific methods of investigation either by serum reactions or by the use of subcutaneous doses of tuberculin, and until some such methods of examination are adopted an open mind must be maintained. Hemoptysis does not contraindicate test injections but it is an indication for careful dosage.

Archives Médicales Belges, Paris

April, 1918, **71**, No. 4

27 *Colibacilloses. F. Rathery.—p. 369.
28 *Icterohemorrhagic Spirochetosis. P. Nolf and J. Firket.—p. 380.
29 Eye Disturbances in Icterohemorrhagic Spirochetosis. L. Weekers and J. Firket.—p. 414.
30 After Amputation of the Arm. M. Stassen and G. Hendrix.—p. 418. F. Martin.—p. 428.
31 General Principles for Prostheses after Amputation. M. Stassen.—p. 443.

27. **Colon Bacillus Septicemia.**—Rathery reiterates that bacteriologic examination of the blood is the only means of differentiating colon bacillus septicemia from typhoid. In two of his five cases with positive findings the clinical picture was exactly like that of mild typhoid, with rapid convalescence. In other cases the septicemia resembled acute dysenteriform colitis in its manifestations, the attacks of pain and diarrhea. In the third case pulmonary symptoms predominated but there were always some symptoms on the part of the digestive apparatus, and infectious sore throat. Still another type was presented by one man of 36 who developed febrile jaundice and suppuration in the gallbladder in the course of an echinococcus cyst in the liver. Other echinococcus cysts were found in the lung at necropsy. Picot and Michel found colon bacilli in forty among 460 war wounds examined, including one case of skull wound. In the majority, the wounds were on the legs. The colon bacillus was in pure culture only in four of the forty. Some of the wounds were soiled and others only slightly so. The presence of colon bacilli did not interfere with the primary suture of the wounds. Rathery found the colon bacillus in the blood only in the above five cases out of 1,863 men whose blood was examined for the purpose.

28. **Icterohemorrhagic Spirochetosis.** — Nolf and Firket review the experiences with 100 cases at the Hôpital Cabour in Belgium. Most of the cases developed during hot weather. The disease was very severe in about 10 per cent.; in some of these the hemorrhages were alarming. In others the nervous symptoms predominated, or extreme prostration was the main feature. The blood pressure in this latter group was lower than they had ever observed before in any disease with a favorable outcome. They recorded the blood pressure in all the men with this spirochetosis, and regard the extreme hypotony often noted as the cause of the anuria. Others ascribe this anuria to toxic kidney derangement, but Nolf and Firket were impressed, on the contrary, with the absence of signs indicating involvement of the kidneys. There was no visible hematuria in any instance, and scarcely any albumin or tube casts in the urine. But the low blood pressure entailed the anuria, and this demonstrates the necessity for giving the patient abundant fluids to drink. The physician must pay special attention to this, as with the extreme prostration and the tendency to vomit, the patient is liable not to get enough to drink. They ordered the nurses to give these patients 3 liters of fluid a day, half in the form of milk. This was supplemented with epinephrin to tide the men past the danger point. They gave to every patient with minimal blood pressure of 6 c.c. mercury, four, six or even eight doses in the twenty-four hours, each of 0.5 c.c. of the 1 per thousand solution. A few patients were unable to drink so much fluid, and they were given subcutaneous injections of an isotonic solution of glucose or an intravenous injection of a 10 or 30 per cent. solution of glucose. The effect seemed to be favorable. They warn that the finding of spirilla in the urine may be accidental contamination or it may be a question of saprophytes. The fever may return, but the jaundice does not accompany it, nor the severe pains and other symptoms of the original onset, and the fever lasts only four or five or seven days at farthest.

In conclusion they comment on the close analogy between this spirochetosis and yellow fever. These two diseases are of the same type, only that yellow fever is graver. The analogy becomes identity, they assert, when this spirochetosis is compared with "bilious typhoid" or "Griesinger's disease," another tropical disease. This too, like the spirochetosis, is not contagious; its small foci are always located close to the mouths of sewers, and it appears in the summer and disappears during the winter.

Bulletin de l'Académie de Médecine, Paris

July 9, 1918, **80**, No. 27

32 *Agricultural Work for the Wounded. J. Bergonié.—p. 23.
33 Magnesium in Treatment of Cancer. J. Regnault.—p. 29.
34 *Hot Air in Treatment of the Gassed. J. Bandaline and J. de Poliakoff.—p. 30.
35 Gastritis and Dyspepsia. F. Ramond.—p. 32.
36 *To Measure Force of Jaws. P. Robin.—p. 33.

32. **Substitution of Natural for Artificial Physiotherapy.**—Bergonié laments that it has taken four years for even the most progressive physicians to become convinced that natural physical measures are incomparably superior to artificial measures in restoring approximately normal conditions in the wounded. Repeated muscular contraction, he reiterates, is the best form of deep massage of the tissues involved, and life

out of doors is the best all-around means for recuperation in general. All of this is realized by agricultural work, and he is applying it systematically more and more in treatment of the wounded, without waiting for complete healing. He pleads for hospitals in a farm environment to which the wounded can be sent after their operation, where wounds can be dressed and agricultural work imposed under medical surveillance. His three years' experience has convinced him more and more that work in the fields every day and all day long gives a functional activity superior both in quality and quantity to what can be realized with artificial physiotherapy, even leaving out of account the improvement in morale and hygiene of the out-of-doors life. He insists that the costly installations of mechanotherapy in the war hospitals have been an expensive blunder. It is time to admit this and turn to agricultural work, medically prescribed and under medical supervision, as superior to all other measures in treatment of the sequels of war wounds. Bergonié has been making a special study in the last few months of the present status of the wounded who had been treated with the natural or the artificial method of physiotherapy, and what he has found has aroused him to proclaim anew, with insistent emphasis, the superiority of the natural over the artificial method. At the Hôpital complémentaire 4, where it has been applied for a year, 93 per cent. of the 1,605 wounded were restored to the army, only thirty-six men being classed for limited service, and sixty-five men dismissed from all service, with thirty-eight stationary cases. He adds that the tangible results of 107,000 days of agricultural work form a useful by-product of the method.

34. **Hot Air in Treatment of Burns from "Mustard Gas."**—Bandaline has been much impressed in cases of severe burns with the prompt relief and promotion of healing that follow turning a jet of hot air on the lesion. He uses hot air at 150 or 180 C. under a pressure of 300 gm. It proved particularly effectual in treatment of the intense pain and insomnia from the burns caused by yperite—"mustard gas." In ten such cases the intense pains had persisted for three weeks or more, but under the hot air douches the lesions healed completely in three or four weeks.

36. **Functional Disability of the Jaws.**—In estimating the degree of disability after war wounds, Robin has found useful a device that he calls the buccal dynamometer. It records automatically the degree to which the mouth can be opened and the force left in the jaws. It thus enables appreciation of the amount of functional disability after a war wound of the jaws and reveals any attempt at simulation.

Paris Médical

June 15, 1918, **8**, No. 24

37 *Beriberi with Edema. P. Mauriac and D. Duclos.—p. 465.
38 *Malignant Slow Endocarditis. H. Roger.—p. 468.
39 *General Anesthesia by Sacro-Cocainization. G. le Filliatre.—p. 471.
40 *Clinical Rachi-Albuminimetry. L. Boyer.—p. 475.
41 Radicular Phrenic Neuralgia. J. Lévy-Valensi, Brian and Aboulker.—p. 476.

37. **Beriberi with Edema.**—In this communication is described a small epidemic of twenty-one cases of beriberi in native troops from the Senegal, serving in France. The main features were the edema, the disturbances on the part of the heart, and the mononucleosis in the blood. There was albuminuria in half the cases. The edema predominated in the legs and spared the face and scrotum, but pulmonary edema developed in some. Retention of chlorids seemed to be a factor, as the edema subsided on a salt-poor diet. The men at first complained of pains in legs and chest, but seemed to forget them by the next day, except in one case in which there seemed to be actual myalgia. All the men recovered except one. The diagnosis of beriberi is not very certain as there was no tendency to polyneuritis, dyspnea or vomiting.

38. **Slow Endocarditis.**—Roger reports two cases of malignant endocarditis with a protracted course. One patient was a Russian lawyer of 40, the other a man of 30 in the diplomatic service. Both had had acute articular rheumatism in youth. The only hope seems to be from autogenous vaccine therapy and serotherapy, and this should be tried in such cases. The onset is insidious, and nothing on auscultation shows the development of the phase in the evolution of the old valvular lesion. The fever is the principal and often the only symptom; it is often remittent, but bed rest does not seem to reduce the temperature. The disease progresses in waves, and in the intervals the patient talks of returning to business. The waxy complexion is striking; it is quite different from the cyanosis of ordinary heart disease. Lassitude, emaciation and pains in the joints, inclined to be fleeting, but sometimes accompanied by swelling, are the chief complaints. The diagnosis of pulmonary tuberculosis is often erroneously made. Purpura is common, petechial spots rather than large ecchymoses, but the pathognomonic sign is the appearance of small erythematous nodules on the skin, about as large as a pea, painful, persisting for hours to two or three days, and occurring in groups of four or five. They appear mostly on fingers and toes, and are caused by minute emboli, scraps from the new vegetations forming in the endocardium. They are never found in other forms of heart disease.

39. **General Anesthesia by Sacrococainization.**—De Filliatre declares that more than 2,000 applications of the *barbotage* method of spinal anesthesia have confirmed the efficacy and harmlessness of the technic. With a single injection the entire spinal cord and its roots can be anesthetized. Cocain seems the best anesthetic for this technic. The needle is 12 or 15 cm. long; the syringe has a capacity of 3 c.c. and with it is used a graduated glass tube of 30 c.c. The needle is introduced into the sacrolumbar space at the first sacral vertebra. After removing the guide, the spinal fluid flows and is received in the graduated tube. Then the syringe containing the solution of cocain is attached and the piston is gently pushed in. Then it is allowed to slide back, having the patient cough if necessary. The piston is then pushed in again, and this maneuver is repeated three or four times. This *barbotage* terminated, the needle is withdrawn and the seated patient is made to recline. (The dictionary defines *barboter*, "to dabble, to paddle.") He draws 20 c.c. of the spinal fluid for anesthesia to the breast if the fluid drips, but takes 25 c.c. if it spurts. For anesthesia of the head, he draws 25 or 30 c.c. The amount of cocain for the subumbilical region is 2 c.c.; for the supra-umbilical region, 2.5 c.c. If the patient is very strong he goes up to 3 c.c. For the legs, 1 c.c. is enough. An assistant makes the patient breathe regularly twenty times a minute. During the operation and for two hours thereafter the patient's head is not moved. Another precaution is a subcutaneous injection of scopolamin morphin half an hour before the operation, with an injection of 3 mg. strychnin sulphate and of 5 cg. spartein sulphate. The eyes are then bandaged, and no one speaks during the operation.

40. **Clinical Albuminimetry for Spinal Fluid.**—The fluid is treated with a precipitating reagent, and is then compared with a scale of known strengths of albumin. The reagent advocated is a mixture of 13 gm. salicylic acid crystals and 15 c.c. of pure sulphuric acid. This mixture is heated gently, and set aside to cool as soon as fusion is complete. Then distilled water is added to bring it to 100 c.c. Then filter. The scale for comparison is a set of ten tubes containing human blood serum, starting with 1 c.c. and 74 c.c. of physiologic saline.

Presse Médicale, Paris

March 18, 1918, **26**, No. 16

42 *Resisting Power of Blood Corpuscles in Various Isotonic Salt Solutions. H. Chauffard and J. Huber.—p. 141.
43 *Periosteum in Formation of Bone. R. Leriche and A. Policard.—p. 143.
44 *Quinin in Capsules. P. Ravaut.—p. 146.
45 Tertiary Syphilis in Morocco. Lacapère.—p. 146.
46 American Theories of Shock. J. Luzoir.—p. 148.
47 Abuse of Milk in Children. J. Comby.—p. 150.

42. **Resistance of Blood Corpuscles.**—Ringer's fluid seems to be the best adapted for testing the fragility of the blood corpuscles in hemolytic conditions. The aim should be to test them as much as possible in their natural environment. Different isotonic saline solutions may vary in their ion content, and hence they cannot be considered as physiologic equivalents.

43. **The Periosteum.**—The experiences of Leriche and Policard demonstrate that with periosteum one can almost make bone at will, whatever the age of the subject. The corticalis of the bone produces the bone tissue, and the periosteum keeps it within proper bounds. The regeneration of bone requires the cooperation of the two. The periosteum, thus physiologically understood, represents the true manageable element of surgical osteogenesis. Some of the histophysiologic details of the regeneration of bone are shown in illustrations, confirming that the periosteum serves as a region of ossification, but only when there is some bone tissue present. In a subperiosteal resection, for instance, scraps or slices of the osseous tissue, the corticalis of the bone, must be left adherent to the periosteum. From the combination of the two, results a regeneration of bone which is under control at all times.

44. **Capsules for Quinin.**—Ravaut urges the use of capsules which pass through the stomach unmodified. By this means all disturbing influence on gastric digestion is avoided. The technic for making protecting capsules is not perfected; those he has been using crumbled in three months.

Correspondenz-Blatt für Schweizer Aerzte, Basel

July 6, 1918, **48**, No. 27

48 *The Prematurely Born. M. Reber.—p. 897.
49 *Transfusion of Blood. C. A. Pettavel.—p. 906. Conclusion.

July 13, 1918, **48**, No. 28

50 Industrial Insurance from Otolaryngologic Standpoint. F. Siebenmann.—p. 929.
51 Treatment of Little's Disease. H. Hössly.—p. 935.
52 Herpes Zoster of Nose and Face with Paralysis of Ocular Muscles. W. Löffler.—p. 942.

48. **The Prematurely Born.**—Reber's experience at the Basel Infant Asylum with 152 prematurely born infants has confirmed that such children must be given from 120 to 140 calories per kg. of body weight every day. It is possible for children to thrive even when they weighed only a little over 1,000 gm., that is, about 2 pounds and 4 ounces. The smallest surviving infant weighed 1,120 gm. at birth, and 1,010 gm. a few days later. The main difficulty is to get them to take the food. The smallest chest measure of any child that survived was 21 cm., and 26 cm. was the smallest circumference of the head. The prematurely born children of parents with tuberculosis or syphilis all died, and the children presenting protracted jaundice or attacks of asphyxia generally died. About 20 per cent. of all the prematurely born in his service were twins. The surviving prematurely born infants have nearly all developed into healthy children, with average weight and height for their years, and average hemoglobin percentage.

Incubators are not used now in the institution; the infants are kept warm with two or three hot water bottles in the bed, the head covered with a cotton padded hood, with careful and frequent control of the infant's temperature. The infant can be fed in this way without having to move it much. It is of vital importance not to let the child get chilled on its way from the residence to the institution. The drop in temperature after birth is exceptionally great in these infants. One child that survived had only 34.4 C. (94 F.) at one time, and normal temperature was not attained until after two weeks. Both the central and the peripheral regulations of the temperature seem to be defective. The evening rectal temperature was scarcely ever over 37 C. when the children were thriving. Even with children born at term, a rectal temperature over 37.2 C. (99 F.) he regards as pathologic. Only one died of the four prematurely born infants of women in eclampsia, and none of the four women with a heart defect.

He found buttermilk useful in the first weeks when the supply of breast milk was not adequate. A mixture of cow's milk and gruel to supplement the breast milk sent the weight up, probably from retention of water on account of the increased ingestion of salt. One of the larger of the prematurely born infants seemed to thrive perfectly on diluted cow's milk alone from the very first days.

49. **Transfusion of Blood.**—Pettavel describes the present status, technic and results of transfusion of blood, with the recent bibliography on the subject, including numerous articles from THE JOURNAL. The principal indications for it, he says, besides anemia from severe hemorhage, are in the hemorrhagic diatheses (hemophilia, hemorrhagic tendency in the newly born and hemorrhagic purpura), and in certain toxemias, such as poisoning with illuminating gas. To attempt transfusion of blood under other conditions is to bring discredit on it. We must not demand of it beyond what it is able to render.

Annali di Ostetricia e Ginecologia, Milan

January, 1917, **39**, No. 1. Pub'd July, 1917

53 Spontaneous Healing of Ureter Fistulas after Gynecologic Operations. A. Gentile.—p. 1.
54 *Tuberculosis of Female Genital Organs. U. Tassoni.—p. 25.

54. **Tuberculosis of Female Genital Organs.**—Tassoni states that among the 948 patients in the Istituto Clinico Ostetrico-Ginecologica at Rome, in a recent three-year period, nine presented unmistakable tuberculous lesions in the genital organs. The tubes were involved in seven of the cases, while the ovaries and vagina were spared. In seven of the nine cases, hypoplasia of the genital organs had evidently afforded a predisposition, and in seven cases the lesions were secondary—usually to peritonitis. The interval between the primary lesion in pleura, lung or peritoneum was two, three, ten, twelve or fifteen years. The symptoms from the genital lesions were long vague and insidious. Five of the women had previously borne children. In one case there was concomitant gonorrhea, and in another, syphilis.

Clinica Chirurgica, Milan

Oct. 31, 1917, **25**, No. 9-10

55 *War Wounds of the Skull. S. d'Este.—p. 225. Conclusion.
56 *Internal Hernia in Peritoneal Fossas. G. Bolognesi.—p. 250.
57 *Blood Cysts in the Neck. F. Nassetti.—p. 298.

55. **War Wounds of the Skull.**—D'Este's profusely illustrated article reviews his experience with 87 operative cases of war wounds of the skull. It teaches that exploration should never be neglected, even when the cranial wound seems insignificant. The skull in the region should always be exposed. A semicircular incision in the scalp gives the best flap for examination of the bone. He does not approve of craniotomy as the routine procedure, but only when it is called for. Then the traumatic area from scalp to brain must be cleared out, removing all loose splinters of bone and accumulations of blood, as well as all accessible projectiles. The splinters of bone, loose or still attached, are fitted into place in repairing the breach, fastening them if necessary with wire, silk or coarse catgut. He uses an extension frame, something like a photographer's head rest, which screws to the table and holds the head at the desired angle and height above the plane of the table. The brain was found to be injured in 36 of the total 87 cases, a simple contusion, inflammatory processes, or embedded splinters, but all the men recovered except six. In 4 men the brain lesion was found too serious for survival; in the other 2 complications were responsible for the fatality. The article is accompanied by a page long summary in French, in German and in English.

56. **Internal Hernia.**—Bolognesi refers to hernias in the hiatus of Winslow or the natural recesses in the peritoneum in the region of the duodenum, cecum, sigmoid flexure, etc. They are usually grouped as retroperitoneal hernias or Treitz' hernias. He has been studying these recesses on cadavers, and reviews the literature on clinical cases, giving thirty-five illustrations of the various types of these *fossette peritoneali*. The symptoms may be merely slight digestive disturbance or acute or chronic obstruction of the bowel. About 50 per cent. of the duodenal cases proved fatal, but there are quite a number of successful operative cases on record, and about thirty successful cases of the cecal type. He reports a case from his own experience belonging to this latter group. The patient was a man of 46 with acute ileus; he had had similar attacks during the last five years, but very much milder and retrogressing under an enema. The operation revealed an internal hernia in the ileo-cecal recess of the peritoneum, with strangulation of the bowel. The stercoremia was so intense that the man succumbed within thirty-six hours.

Seven pages of bibliography are appended, classified for each of the five peritoneal recesses involved. Summaries of the article in three languages are also given.

57. **Blood Cysts in the Neck.**—Nassetti presents an illustrated description of two cases and reviews fifty from the literature. In twenty-one of the cases an operation was attempted; in five cases necropsy first explained conditions. The differential diagnosis is not an easy matter. The features which speak for a blood cyst are the congenital nature of the tumor, the location in the side, or middle and side of the neck (carotid and supraclavicular), the soft and fluctuating consistency, the extreme compressibility, the rapid and pronounced changes in size and tension during muscular effort, and the extraction with a needle cannula of normal or more or less altered venous blood. None of these features, however, are pathognomonic. Some of the persons were so little incommoded by the lesion that they bore it for ten or twenty years before applying to a physician. There are five deaths on record, but two of the fatalities were due to other causes.

In treatment, compression of the tumefaction reduced it completely in the case of one babe of 4 months. Evacuation of blood does no good; even when associated with compression it never induced complete obliteration of the cavity. In some cases, 5 gm. a day of a 1:5 iodin solution, injected into the cavity, was followed by a cure, the consecutive thrombosis leading to the filling up of the cavity with connective tissue, but complications render this method too dangerous. Woerner's patient died suddenly after the injection. Total enucleation of the cyst seems more rational treatment. This was applied in twenty-three cases, adults and children. Injury of the vein caused threatening hemorrhage in some of the cases. For this reason it seems advisable to ligate the afferent veins beforehand. Also the efferent veins to ward off gas embolism. Hueter had air embolism in one case, but without serious results. The ligatures need not be tied unless or until necessity arises. In cases with extensive adhesions, some have resected part of the cyst wall and painted what was left with phenol and alcohol, but total enucleation of the cyst ensures a complete and permanent cure. In Wolff's case the recurrence three years later was evidently due to the part of the cyst wall which had been left, as it had been adherent to a vein. This case confirms the advisability of resecting along with the cyst any adherent segment of vein.

Policlinico, Rome

July, 1918, **25**, Medical Section No. 7

58 Luetin in Diagnosis of Syphilis. F. De Napoli.—p. 193.
59 Fatal Hemorrhagic Jaundice. A. Bizzarri.—p. 206.
60 Pulmonary Tuberculosis with Bovine Bacilli in Woman. M. Pergola.—p. 216.

July, 1918, **25**, Surgical Section No. 7

61 Penetrating Wounds of Abdomen. G. Egidi.—p. 193.
62 *Changes in Lung after Ligation of Pulmonary Vessels. A. Avoni and P. Caliceti.—p. 207.
63 Successful Operative Treatment of Fistula in Track of Bullet Passing through Buttocks and Rectum. D. Taddei.—p. 219.

62. **Ligation of Pulmonary Vessels in Treatment of Tuberculosis.**—Avoni and Caliceti found that ligation of the branches of the pulmonary vein in rabbits entailed sclerosis in the corresponding territory. The ligation of these ramifications of the vein did not seem to be a serious procedure in the rabbits, but ligation of branches of the pulmonary artery always proved fatal from the grave lesions which developed in consequence in lung and pleura. They ranged from simple inflammatory processes and infarcts to abscesses and gangrene.

Riforma Medica, Naples

July 13, 1918, **34**, No. 28

64 Food Requirements. S. Baglioni.—p. 541.
65 Trauma and Tuberculosis. D. Giordano.—p. 543.
66 *Malaria Plasmodium in the Blood. G. Cavazzani.—p. 546.
67 *Diagnosis of Small Pleural Effusions. G. Tomasinelli.—p. 547.
68 *The Prevailing Febrile Epidemic. A. Montefusco.—p. 549.
69 Uterine Myomas. G. Cristalli.—p. 550.

66. **Evolution of Malarial Plasmodium in the Blood.**—Cavazzani relates experiences which seem to show that the evolution of the *Plasmodium vivax* in the blood differs from the description in the textbooks. His research has apparently demonstrated that certain bodies which have been considered a special form of the parasite are in reality merely empty shells or sacs. It is possible that the action of the laws of gravity may be the explanation of the rising of these empty shells and the consequent clogging of the vessels in the brain, and resulting apoplectic attack, in the course of pernicious malaria. The blood examined was all derived from men with recurring tertian and the *Plasmodium vivax* in the blood. In fresh specimens treated with the May-Grünwald stain, the shape of the red corpuscles containing the blue colorations, although sometimes a little wider in diameter, was never longer axially but rather inclined to be irregular in outline. The outline was not like that of a sac filled to repletion but more like an empty sac. Some seemed to have burst from distension, but some of the contents still clung to the corpuscle, as flour still clings to an emptied flour bag. The blue stain was seen only at the edges, the center being free from it, confirming that the center was empty. Certain corpuscles stained with eosin showed bunches at one or more points around the edge; these apparent bunches proved to be in fact merely the impression from the sinking in of the outline between them, from the collapsing in the center.

In the fresh specimens, moreover, examined within five minutes, at a temperature of 25 C., he noted numerous bodies which resembled a chestnut bur, with every prickle motile to such a degree that the body not only moves about in the plasma but pushes obstacles out of its way, scattering the corpuscles right and left when it meets a group of reds. The diameter of these bodies is about half that of the large reds, and the color is a little more distinct than that of the reds. A curved, forking projection, about 2 microns long, imparts such velocity of movement that in a few seconds it traverses the microscopic field. In the dried specimen, the outline is smooth, the projections evidently shrinking during the desiccation. In one specimen this body seemed to have just escaped from a red corpuscle beside it, and it was making contractile movements, at least 100 a minute. There can be no doubt as to the identity of these bodies with the plasmodium, he exclaims, but they take the eosin stain. The blue stain in the red corpuscles seems to be merely the stain taken by the walls lining the passage of the parasite on its way through and out of the red corpuscle. The blue stain shows the effects, the track, of the parasite, but not the parasite itself. He refers to research by his brothers which demonstrated pores in the red corpuscles. These pores explain the ready penetration of the parasite in the bacteriform stage into the red corpuscle. If the pore where it entered happens to get obstructed, the blue stain does not get into the red corpuscle. Cavazzani is physician in chief of the malaria section of the Bergamo base hospital.

67. **Small Pleural Effusions.**—Tomasinelli declares that the only way to detect a small pleural effusion is by letting it accumulate at one point by the action of gravity—all effusions are mobile, he insists, unless adhesions prevent. The patient should lie supine and the posterior wall of the chest should be auscultated, palpated and percussed. This is inconvenient, but it is possible by having the patient's neck supported as he lies with the upper part of his trunk projecting beyond the bed. Effusions, even those of inflammatory origin, slide around readily for weeks.

68. **The Prevailing Febrile Epidemic.**—Montefusco describes the febrile epidemic that is sweeping over Italy, as it did over Spain, and declares that rigorous clinical observation and epidemiologic considerations dispel all doubt and confirm that the epidemic is the so-called three-day fever and not influenza. No influenza bacilli have been found in the cases in Italy. Influenza is a cold weather disease; it is accompanied by symptoms on the part of the respiratory organs, while these are exceptional in the present epidemic. The pains in the limbs are more of the "break-bone" type of three-day fever and dengue than of influenza. Epidemics of three-day fever have been reported at various points in recent years, one at Messina in June, 1910, attacked 6,000 civilians and 1,000 soldiers.

Annaes Paulistas de Medicina e Cirurgia, S. Paulo

January, 1918, **9**, No. 1

70 Balantidiosis in São Paulo. T. Bayma.—p. 1.
71 Artificial Pneumothorax in Treatment of Pulmonary Tuberculosis. C. Ferreira.—p. 5. Commenced in Vol. 8, No. 12.—p. 269.

Archivos Españoles de Enf. del Ap. Digestivo, Madrid

June, 1918, **1**, No. 6

72 Tests for Fermentation in Stools. F. F. Martinez.—p. 241.
73 Tardy Pains in Glandular Gastritis. A. L. Mingot.—p. 244.
74 Roentgen Diagnosis of Gastric Cancer. B. Barcelona.—p. 264.

Brazil-Medico, Rio de Janeiro

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75 Flagellate Parasites of Brazilian Mammals. A. da Cunha.—p. 161.
76 *Antiscorpion Serotherapy. E. Villela.—p. 161.
77 *Nervous Symptoms from Eye Strain. C. de Rezende.—p. 162.

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78 Cholecystitis with Liver Abscess. C. Fonte.—p. 169.

76. **Antiscorpion Serotherapy.**—Since Villela's first publication on this subject (summarized in The Journal, Feb. 9, 1918, p. 423), this serotherapy has been applied successfully in a number of cases. Most of them were mild, but two were quite serious, and he gives the clinical history in these cases. They are particularly instructive as rapid recovery followed the serotherapy in the one case in which the antivenom was injected early. In the other case there was an interval of twenty hours, and the child, a little more than 2 years old, died three hours later. The other child, 10 years old, had been stung on the hand, forearm and in the sacral region. She began to vomit almost at once and incessantly, and felt very chilly, with extreme thirst and agitation, tachycardia, arrhythmia, and intense pain in the stung arm. In less than four hours the antiscorpion serum was injected in a dose of 6 c.c. in the arm and 2 c.c. in the thigh. The serotherapy had been preceded by three venesections. Improvement was soon manifest, but the vomiting kept up for several more hours. The next day, except for local tenderness, there were no further disturbances.

77. **Nervous Disturbances and Eye Strain.**—De Rezende comments on the widely diverse pains and other disturbances for which eye strain may be responsible. The connection between the headache or other pains or nervous disturbances with the defect in refraction causing the eye strain is almost invariably overlooked by the general practitioner, he says, in Brazil, at least. He cites literature which shows that this is not restricted to Brazil. Seven particularly instructive cases are reported. One woman had headache for four years, sometimes frontal and sometimes occipital, most frequent and tormenting during the months of extra work in her trade of making flowers. She wore spectacles, but when proper glasses were prescribed all symptoms disappeared. This patient was a woman of 44, and the headache came on during the day. The other patients were between 19 and 28, and the symptoms from eye strain included dizziness, morning vomiting or attacks of hysteria besides the severe headache, generally in the morning. One young woman said she felt as if there was something wrong inside her head and that insanity was impending, and she pressed her hands on the two parietal regions.

Cronica Medica, Lima

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79 *Syphilitic Cerebral Arteritis. E. Odriozola.—p. 129.
80 *Anomalies in Pectoralis Muscle. J. C. Dianderas.—p. 134.
81 *Psychanalysis in Neuroses and Psychoses. H. F. Delgado.—p. 140.

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82 *Spirochetes in Lima Rats. R. E. Ribeyro.—p. 157.
83 Motor Aphasia. L. D. Espejo.—p. 159.
84 Section for Contracted Pelvis. J. A. Maldonado.—p. 162.
85 *Dubious Sex. M. E. Portugal and C. A. Bambaren.—p. 114.
86 *Acute Nephritis in Secondary Syphilis. L. N. Saenz.—p. 169.
87 The Lymphoid Apparatus. P. Arana and L. Rospigliosi.—p. 173.

79. **Syphilitic Hemiplegia.**—In Odriozola's case, the left hemiplegia is of cerebral origin and the signs of syphilis and alcoholism point to arteritis inducing some small thrombosis or hemorrhage. Such lesions are exceptionally rebellious to treatment; specific treatment kept up for years seems to be the only recourse.

80. **Anomalies in Pectoralis Muscle.**—Dianderas gives an illustration of some anomalies found in both pectoralis muscles of the cadaver of a youth of about 16. If a surgeon had met them in operating he would have been misled.

81. **Psychanalysis in Neuroses.**—Delgado discusses the interpretation of neuroses and functional psychoses by the light of psychanalysis.

82. **Spirochetes in Rats at Lima.**—Ribeyro's research has demonstrated in rats, caught at different points in the city, the presence of the spirochete of hemorrhagic jaundice. They were found in two of the six adult rats, but none were detected in the eight young rats. The kidneys were the only organs examined. The spirochetes were found in the convoluted tubules; sometimes they were in such numbers that they obstructed the lumen. He urges that this infestation with spirochetes is another reason for redoubling the efforts to exterminate rats.

85. **Dubious Sex.**—The patient lived as a woman, but the genital organs were those of lateral hermaphrodism, with what looked like spermatic fluid and irregular menstrual discharge.

86. **Syphilitic Nephritis.**—Saenz remarks that the high albuminuria with acute nephritis in the secondary stage of syphilis does not necessarily imply a grave prognosis. From 5 to 25 gm. of albumin is common, and one case is on record with 110 gm. per liter, with recovery. The other symptoms are those of any nephritis. The prognosis can be estimated from the retention in the blood as with nephritis of other origin. If the retention of chlorids and the albuminuria persist unmodified by specific treatment, the outlook must be regarded as grave. As a rule, however, the acute nephritis subsides under specific treatment, but sometimes it becomes so severe that a fatal termination is inevitable, or the patient may succumb to an intercurrent lymphangitis or erysipelas.

Prensa Medica Argentina, Buenos Aires

June 10, 1918, **5**, No. 1

88 Joint Lesions from Tardy Inherited Syphilis. M. R. Castex and R. Denis.—p. 1. To be continued.
89 *Round Ulcer in Esophagus. P. Escudero.—p. 7.
90 *Pulmonary Syphilis. P. M. Barlaro.—p. 8.
91 *Visceral Lesions with Ignored Syphilis. C. B. Udaondo and M. M. Casteigts.—p. 10.
92 Necessity for Coordination and Standardization of Institutions for Child Welfare Work. G. A. Alfaro.—p. 11.

June 20, 1918, **5**, No. 2

93 Present Status of Gastro-Intestinal Derangement in Infants. F. de la Torre.—p. 17.
94 *Cirrhogenous Splenic Anemia. T. Castellano.—p. 20.
95. *Myiasis of the Palate. J. Hansen and S. Mazza.—p. 23.

89. **Round Ulcer of the Esophagus.**—Escudero's patient was a man of 56 with symptoms of cancer at the cardia gradually developing in the course of two years. Gastrostomy gave only transient relief, and roentgenoscopy located the stenosis in the lower esophagus and explained it as the cicatrix of an ulcer in the esophagus. Necropsy three years and a half after the first manifestations showed the typical scar of a gastric round ulcer in the lower esophagus, with a cancerous growth just below. With an esophageal ulcer, the progressive stenosis follows after the pains, while with a juxtacardiac gastric ulcer, the painful dysphagia persists as long as the morbid picture continues. With an organic stenosis there is dysphagia for solid food first, and later for fluids; with cardiospasm the dysphagia occurs with liquids first and later with solid food.

90. **Pulmonary Syphilis.**—Barlaro gives the details of three cases which show the wide range of lesions in the lungs for which syphilis may be incriminated. One woman of 47 presented what seemed to be bronchopneumonia on one side and putrid bronchitis on the other, but the whole vanished in eight days, under mercury, as also in another case a bronchitis with much dyspnea which had been dragging along for six months.

91. **Visceral Lesions with Tertiary Syphilis.**—The man o 63 had had symptoms at times from the stomach and later

from the duodenum for nearly ten years. There were no known venereal antecedents. Considerable improvement followed an operation on the duodenal ulcer, but the man returned two months later with unmistakable tertiary meningitis which promptly subsided under mercurial treatment, as also a grave hepatitis which developed a few months later.

94. **Splenic Anemia.**—Castellano is unable to class the case he describes with any of the established types of splenic anemia. The young man's anemia was intense from the first; the spleen and liver became much enlarged with ascites. The necropsy findings in the spleen differed from those with Banti's disease, and treatment as for syphilis had been futile.

95. **Myiasis of the Palate.**—The young herdsman was accustomed to sleep with his mouth open during his siesta in the fields. He applied for relief from sore throat; a patch of gangrene in the center of the palate attracted attention, and this was flushed with an antiseptic. The fourth day from the first symptoms he expelled from his mouth a worm, the larva of a fly. The gangrenous patch was then excised and in a cavity behind it were found 265 larvae of the blue meat fly. The larvae measured from 15 to 18 mm. long by 3 mm. in diameter.

Progresos de la Clinica, Madrid

June, 1918, **6**, No. 66

96 *Semen from Forensic Standpoint. A. Lecha-Marzo.—p. 249.
97 *Lesions of Tertiary Syphilis. V. Gimeno.—p. 281.
98 *Test for Gastric Acidity. E. de Salamanca.—p. 299.

96. **Spermatic Fluid from Medicolegal Standpoint.**—Lecha-Marzo reviews the extensive literature on the identification of human semen in spots on linen, etc., and also the literature on the various tests that have been proposed for differentiation. He gives the microscopic findings with the Florence iodin test and others, illustrating both the Florence roundish crystals and the Baecchi hexagonal crystals. The Florence test gives positive findings not only with semen from dogs, cats, horses and other animals, but also with egg yolk, juice of beans and of garlic and other substances, but the Baecchi crystals found with it seem to be specific for human semen. The Barberio test with a saturated aqueous solution of picric acid seems to be specific for spermatic fluid but Lecha-Marzo and De Dominicis have reported positive findings with dog spermatic fluid. Lecha-Marzo's own test (published in 1913), is with a 10 per cent. solution of phosphomolybdic acid. A drop of the spermatic fluid or of the maceration of a stain is placed on a glass slide; this is covered with a cover glass, and between the two is passed a drop of the phosphomolybdic reagent. He usually moistens with distilled water the suspected stain, and after waiting a few minutes to an hour, he squeezes the fluid out on the slide. It can be made more concentrated by heating to evaporate some of the fluid. The reaction is not complete for several minutes. Then a microscope of 600 diameters shows numerous crystals. The most characteristic are hexagonal flat crystals, isolated or clumped. There may also be crystals resembling Barberio's crystals. The characteristic hexagonal and round crystals may show striation, and yellow bodies, resembling mulberries, may be seen in the microscopic field also. Some crystals are colorless, some yellow, some greenish. The hexagonal crystals resist the action of chloroform. Potassium hydroxid turns them blue, and new shapes of crystals appear. In conclusion, he reiterates that his test and the Florence and Barberio tests are specific for spermatic fluid, but further experience is necessary to determine beyond question whether they are specific for human spermatic fluid.

Biologic tests for spermatic fluid with prepared guinea-pig serum have given interesting results. Lecha-Marzo's own experiments suggest the possibility of distinguishing the spermatic fluid of a given person by anaphylaxis tests. He found that an anaphylactic shock followed when a guinea-pig, sensitized by intracardiac injection of blood from a certain person, was then injected with spermatic fluid from the same person. Similar positive results were observed also when the sensitizing injection was made with 0.25 c.c. spermatic fluid, followed by the injection of 1 c.c. blood from the same person. There was no sign of anaphylaxis, on the other hand, when the blood and the spermatic fluid were derived from two different persons. The anaphylaxis test does not prove that the stain is from spermatic fluid, but that it is of human origin. His research offers the prospect that with the anaphylaxis method we may be able to distinguish between different individuals in this respect. As a rule, however, the precipitation method is the most reliable to date of the biologic tests. The article is accompanied with fifteen fine microscopic views, some colored.

97. **Tertiary Syphilitic Lesions.**—Gimeno contributes to the clinical iconography of acquired syphilis, among others, two colored plates of tertiary lesions. One shows ulcerating gummatous syphilids on the back, the other on cheek and lip.

98. **Test for Gastric Acidity.**—De Salamanca declares that heating to boiling renders the usual tests for acidity much more reliable, as he describes in detail.

Repertorio de Medicina y Cirugia, Bogota

June, 1918, **9**, No. 9

99 *Aerophagia. E. Piedrahita.—p. 461.
100 The Schooling of Abnormal Children. J. Bejarano.—p. 475.
101 *Amebic Dysentery; Toxicity of Emetin. R. Zapata.—p. 485.
102 Fracture of Skull. J. A. Escobar.—p. 492.

99. **Aerophagia.**—Piedrahita says that the repeated movements of swallowing, the belching of gases, followed by transient relief, and the gurgling sound heard on auscultation of the cardia, aid in revealing aerophagia as the cause of certain disturbances in the stomach, heart and air passages. If the eructation is done facing the flame of a candle, the flame does not waver as it does when fermentation gases are expelled. Three unusually inveterate cases are described, in men from 50 to 64 years old, whose incessant but unsuspected aerophagia had caused dilatation of the stomach with consequent displacement of other organs, with symptoms that had annoyed them for twenty years. The men were enlightened as to their unconscious swallowing of air as they swallowed their saliva, and were instructed how to avoid it. The most effectual means for this is to place a cork between the teeth for fifteen minutes at a time, especially after meals. With a cork between the teeth it is impossible to swallow, and the men soon conquered their aerophagia habit and with it subsided all their symptoms. Piedrahita says that this habit of swallowing air is often an actual tic, and it seems to be responsible for 10 to 15 per cent. of the cases of digestive disturbances encountered at Bogota. This dilatation of the stomach stretches its walls and smoothes out the folds which shelter the secreting glands, and, besides this, the pressure on surrounding organs may induce dyspnea, intracranial oppression and sensory phenomena, unconsciousness and dizziness. He advises carrying a cork in the pocket and putting it between the teeth when the impulse comes to swallow. If there is a tendency to hyperacidity, he supplements this with alkalines and sedatives to soothe the irritated glands in the stomach. By these means excessive production of saliva is prevented, which aids further in checking the swallowing of air.

101. **Amebiasis at Bogota.**—Zapata comments on the prevalence of amebiasis at Bogota, even in persons who have never lived at a lower altitude. The action of the ameba is by no means restricted to the production of dysentery. It may be responsible for various intestinal disturbances but the most common manifestation of its presence is a form of colitis. In one case of the kind an operation for hemorrhoids and an exploratory laparotomy were made, seeking to remove the cause of the bloody stools, the intense pain in the left iliac fossa and the diarrhea. Under emetin, all the symptoms subsided for five months; then they returned severer than ever, and the emetin was resumed supplemented with ipecac. The symptoms were much mitigated but did not completely subside, and the ipecac was given in larger doses, 2 gm. in 100 c.c. of water. After the second of these large doses the pulse ran up suddenly to 120 while the blood pressure dropped very low and there was paresis of all the muscles, especially those of the neck and of inspiration. The woman could not lift her head and swallowing was extremely difficult, compelling suspension of the treatment.

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SYMPOSIUM ON DISEASES DUE TO DEFICIENCIES IN NUTRITION*

THE "VITAMIN" HYPOTHESIS AND THE DISEASES REFERABLE TO FAULTY DIET†

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The studies of the past decade have revealed the fact that the adequate diet of the higher animals must contain protein of the type known as "complete," by which we mean a protein yielding all the amino-acids that are required in the nutrition of an animal. It must contain, in the form of suitable salts, at least nine of the inorganic elements, namely, calcium, magnesium, sodium, potassium, iron, chlorin, iodin, phosphorus and sulphur. The sulphur must be in organic combination in the form of the amino-acid cystin. The diet must supply a suitable quota of energy in the form of protein, carbohydrates and fats, and must, in addition, contain certain substances of unknown chemical nature, to which Funk gave the name "vitamins." There are still differences of opinion concerning the probable number of these substances.

There are two ways of attacking the solution of this problem. We may attempt to show that the several syndromes that are referable to faulty diet can be relieved by the administration of such preparations as make it certain that the relief is not brought about by any known and well recognized constituent of the diet. For each of the syndromes now usually spoken of as "deficiency" diseases, which can be conclusively demonstrated to be relieved by such a method, the existence of a substance of the class frequently designated as "vitamins" is demonstrated. Successful attempts in this direction have been limited to two syndromes. Beriberi, which is recognized as being due to the lack in the diet of a sufficient amount of a substance, which is an organic compound, and of which an animal requires only a very small amount, and more recently, a type of xerophthalmia which results from specific starvation for a substance that is especially abundant in the fats of milk and of egg yolk, but is found in all foods which contain cellular structures, whether these are of animal or vegetable origin. McCollum and Simmonds[1] first pointed out that this syndrome is analogous to polyneuritis in that there is an organic substance which is found widely distributed in natural foodstuffs which, when administered, causes a prompt relief of all the symptoms in animals that are moribund as the result of specific starvation for this substance. Efforts to demonstrate the existence of a specific substance which can relieve scurvy, a disease which is certainly brought about by faulty diet, have up to the present time proved unsuccessful. Although pellagra has been suspected by some as being one of the "deficiency" diseases in the same sense as beriberi, no evidence of a convincing nature has been brought forward in support of this view.

A second method of approaching the problem of determining the number of chemically unidentified substances which are present in the normal diet and are essential for the preservation of a state of physiologic well-being is through a study of diets simplified as far as possible, and containing only known chemical compounds. The early work in this field by Henriques and Hansen[2] was not sufficiently thorough to contribute much, and that of Hopkins[3] did nothing more than demonstrate the necessity of having in the food of an animal some substance or substances other than the long recognized dietary essentials, protein, carbohydrate, fats and mineral salts. The announcement of the necessity of certain "accessory" food substances, by Hopkins, marked the beginning of a new era in nutrition studies.

Osborne and Mendel[4] conducted an extensive experimental inquiry into the possibility of adequately nourishing an animal during growth on mixtures of carefully purified foodstuffs for the purpose of studying the relative biologic values of the numerous purified proteins that Osborne had isolated from vegetable sources. All their efforts were unsuccessful, and they ultimately adopted a basal food mixture containing a liberal amount of "protein free milk," a product containing all the constituents of milk other than the casein, lactalbumin and fat. To this was added carbohydrate, fat, the indigestible substance agar-agar, and the protein which it was desired to study. Diets of this character cannot be considered as containing only purified foodstuffs, and are not comparable with them.

McCollum and Davis[5] made a systematic effort to find why animals do not thrive on diets consisting of proteins, carbohydrates, fats and inorganic salts. The details of these studies cannot be described here,[6] but the results led them to the belief that in addition to the above named substances the diet, to maintain health, must contain two chemically unidentified substances. These have been designated by McCollum and his co-workers as fat-soluble A and water-soluble B. The first of these is found abundantly in certain fats, as those of the egg yolk and milk; the second is never associated with any fats of either animal or vegetable origin. When the diet lacks the substance of fat-soluble A, animals develop a peculiar eye affection in which the tissues surrounding the orbit swell until the eyes cannot be opened. There is inflammation of the cornea, and blindness results within three or four weeks. The eyes resume the normal appearance after a period of feeding such foodstuffs as contain the dietary essential in question. What we term water-soluble B is the "curative" substance for polyneuritis, or beriberi.

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* This symposium includes the papers by E. V. McCollum; Alfred F. Hess; Joseph Goldberger, G. A. Wheeler and Edgar Sydenstricker; John R. Murlin, and Paul Roth—the first five papers in this issue.

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† Read before the joint meeting of the Section on Pharmacology and Therapeutics and the Section on Pathology and Physiology at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

[1] McCollum, E. V., and Simmonds, N.: Jour. Biol. Chem., 1917, **32**, 181.

[2] Henriques, V., and Hansen, J.: Ztschr. f. physiol. Chem., 1905, **43**, 417.

[3] Hopkins, F. G.: Jour. Physiol., 1906, **44**, 425.

[4] Osborne, T. B., and Mendel, L. B.: Bull. 156, Publications of the Carnegie Institution of Washington, Parts 1 and 2, 1911.

[5] McCollum, E. V., and Davis, M.: Jour. Biol. Chem., 1915, **23**, 231.

According to the view of my co-workers and myself, these two syndromes constitute the only "deficiency" diseases in the sense in which Funk used this term. Scurvy and pellagra, while due to faulty diet, are apt to be explained in other ways than by a lack of specific complex in the diet.

SCURVY

Whatever I may say regarding the nature of the cause of scurvy need apply only to the disease as it is produced experimentally in the guinea-pig, for I have had no extensive opportunity to observe it in the human subject. There are certain well established facts regarding the causation of the disease in the guinea-pig that must be given careful consideration before one forms an opinion concerning the etiology of the syndrome. These will be briefly considered, but first a few words should be said about the character of the most simplified diets with which success has been attained in the nutrition of other species of animals. The animal with which most of the experimental work has been done with such diets is the rat.

It is possible with a diet consisting of carefully purified protein, starch, a suitably constituted inorganic salt mixture, a small amount of indigestible substance, such as agar-agar, together with a fat that contains the dietary essential fat-soluble A (for example, butter fat) and an extract, either by water or alcohol, of some natural foodstuff (such as wheat germ or yeast) to nourish young rats so as to induce practically a normal growth curve to about the full adult size. The extract must, therefore, contain the one or more unidentified dietary essentials not furnished by the butter fat. Either the butter fat or the extract alone in the diet is not sufficient. If the former is omitted, xerophthalmia will appear, and if the butter fat is included and the extract is omitted, polyneuritis will result. A problem of great interest is to determine whether this extract contains one or more than one indispensable substance. Since rats do not develop scurvy on such a diet, one of two assumptions must be accepted. Either the rat does not require a certain chemical complex, a hypothetic antiscorbutic substance which is necessary for the normal nutrition of certain other species, as man and the guinea-pig, both of which are susceptible to the disease, or the antiscorbutic substance, if there be one, is furnished by the extract in question. To say that all the experimental evidence, which is now extensive, points to the conclusion that the chemical requirements of one species of the higher animals is the same as another is scarcely sufficient to dispose of this view.

My associates and I[7] have thrown light on the problem as to whether such extracts contain but one or more than one indispensable dietary complex by our studies of the dietary properties of extracts of natural foods prepared in a somewhat elaborate manner. It was shown that navy beans can be thoroughly extracted with ether, then with benzene, and that neither the ether-soluble nor benzene-soluble material has the power to relieve polyneuritis in the rat, when the animals were caused to develop the disease by restricting them to a diet of purified foodstuffs plus fat-soluble A (butter fat). That the antineuritic substance (water-soluble B) was not destroyed by this treatment of the beans was shown by the fact that the extracted beans or an alcoholic extract of the same still caused prompt recovery of the animals, and resumption of growth when added to the diet. It was further observed that when the material which can be extracted by hot alcohol from beans previously extracted with both ether and benzene was spread over a large surface, by evaporating the alcohol on some finely divided substance, such as dextrin, and the latter then extracted with hot benzene, the benzene-soluble material was capable of inducing prompt recovery of animals suffering from polyneuritis, and of causing them to grow during several weeks. It cannot be argued that the "cure" was temporary in these experiments, for the animals were in a perfectly normal condition when the experiments were discontinued. It follows that, if in addition to the antineuritic substance the benzene extract of the alcohol-soluble material from beans likewise contained an antiscorbutic substance, these, as they exist in the bean, must have both been practically completely insoluble in ether and in benzene, for the extractions were conducted in a continuous extract or for a period of eighteen hours, and that both must have been soluble in hot alcohol, which solvent was likewise continuously applied for a like period. After being removed from the beans by means of hot alcohol, both must have been soluble in hot benzene. The probability that there should be two substances with such unlike physiologic properties, which should agree so completely in their solubility relations, is exceedingly small.

My associates and I[6] have described feeding experiments with rats, in which a purified food mixture consisting of casein, starch (dextrinized), a salt mixture, and butter fat formed 75 per cent. of the food supply, and 25 per cent. of navy beans the remainder. The beans were soaked and heated in an autoclave at 15 pounds pressure for an hour and a quarter, dried and ground. The beans furnished the only source of chemically unidentified food substances other than fat-soluble A, which was supplied in the butter fat, and which, as has been stated, bears no relation to scurvy. On this diet young rats grow well and reach the full adult size. According to the commonly accepted views concerning the properties of the supposed antiscorbutic substance, it should be destroyed by such drastic treatment.

A very significant fact in connection with the production of scurvy in the guinea-pig is that the disease develops when the animals are confined to a diet of rolled oats and milk. This diet is highly satisfactory for the maintenance of health and the support of growth in those species of animals which we have observed (rat and swine) with the exception of the guinea-pig. There can be nothing lacking from a diet of oats and milk which is essential for the maintenance of growth and health in the swine and rat, yet the guinea-pig suffers malnutrition promptly when confined to this food supply. In fact, it has been shown by McCollum and Pitz[8] that a number of diets which suffice for the nutrition of the rat are very unsatisfactory for the guinea-pig. The latter ordinarily thrive only on diets which contain a succulent vegetable, since its cecum becomes packed with feces on diets which are unsuited to its digestive tract. The cecum in this species is very large and delicate, and such a constipating diet as oats and milk causes malnutrition because of the physical properties of the feces which are formed from it, rather than because of a lack of any antiscorbutic substance.

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[6] McCollum, E. V.: The Supplementary Dietary Relationships Among our Natural Foodstuffs, The Journal A. M. A., May 12, 1917, pp. 1379-1386.

[7] McCollum, E. V., and Simmonds, N.: Jour. Biol. Chem., 1918, **33**, 55.

McCollum and Pitz[8] were able to cause the recovery of guinea-pigs which were near death, by the lubrication of their alimentary tracts by the administration of liquid petrolatum, and by the administration of suitable doses of phenolphthalein, which induced sufficient secretion of liquid into the tract to keep the contents of the cecum soft and capable of elimination. Relief and protection in this species were also afforded in several instances by the addition to the diet of an artificial orange juice, made up of such a salt mixture, sucrose and citric acid, as furnished these in about the proportions contained in the edible portion of the orange.

That the condition characterized by swollen joints, hemorrhages in the knees and elbows and gums was actually scurvy rests on the microscopic examinations of their animals by Jackson and Moore,[9] who first described development of the disease by restricting guinea-pigs to an oat and milk diet, and on the diagnosis of the disease by Holst,[10] in animals restricted to an oat diet.

Very important information relating to the etiology of scurvy is furnished by the observations of Hess[11] on human infants. I regard his discussion of the relation of heated milk to the causation of scurvy in infants as the best correlation of the clinical observations that has yet been made, since it harmonizes the conflicting views of various observers, and his conclusions are in harmony with the results of studies on animals fed on simplified diets. Briefly summarized, the data seem best explained as follows:

One of the factors in the pathogenesis of infantile scurvy is faulty diet. Pasteurized milk is a contributing cause when it is stale, and therefore, not in good bacteriologic condition. Aging of milk, with its development of an abnormal flora, is a more important factor in the production of scurvy than is heating, whether the heat treatment involves only pasteurization or heating to the boiling point. Boiled milk or milk pasteurized at from 140 to 145 F. is less liable to induce scurvy than is milk heated at 165. Boiling tends to destroy all the bacteria in milk. Heating to from 140 to 145 for thirty minutes fails to destroy all the lactic acid forming organisms, and milk so heated will sour. The souring is a protective process, in that the development of acid holds in check the growth of putrefactive forms, which constitute the dangerous factor in stale heated milks. Milk that has been pasteurized at 165 will no longer sour unless reseeded with lactic acid bacteria after the pasteurization process. In clean, well regulated pasteurization plants this does not happen, but may occur in slovenly managed plants.

Holst[10] believed that scurvy in the guinea-pig develops as the result of a lack of an antiscorbutic substance in the diet, and believed that this is so unstable that the ordinary drying of cabbage causes its destruction. He held that the oat kernel lacks this antiscorbutic substance. McCollum, Simmonds and Pitz[12] have shown that rolled oats can be supplemented with pure protein (gelatin), an inorganic salt mixture, and butter fat, so as to render it capable of satisfactorily nourishing young rats from weaning time to full adult size, growth taking place at the normal rate. Jackson and Moore[9] have emphasized that butter fat has no tendency to protect the guinea-pig against scurvy, and this I have fully confirmed. It must follow that the oat kernel contains a satisfactory amount of antiscorbutic substance, provided the rat requires such a complex. The fact that the guinea-pig, when fed this diet of oats and purified food additions, rapidly fails necessitates the assumption that the guinea-pig requires a chemical complex not necessary for the normal nutrition of the rat, or the abandonment of the view that an antiscorbutic substance exists.

Hess[11] has also pointed out that one of the common symptoms of scurvy is oliguria, and that the mild therapeutic effect of citric acid may be ascribed to its diuretic properties. He likewise noted in infants the diuretic effects of orange juice. This is an important observation which should aid one in appreciating the fact that the organism may react with the development of profound pathologic states, such as constitute the most prominent features of scurvy, from causes other than a specific starvation for a hypothetic antiscorbutic substance. Injury to the mucosa of the digestive tract may be brought about through diets of faulty physical character, in such an animal as the guinea-pig, because of the peculiar disability of this species due to the unfortunate anatomy of its digestive apparatus. Stagnation of the contents of the cecum are followed by abnormal decompositions, and contact of the mucosa with these may be reasonably held to cause injury. It is not necessary to assume the invasion of the body by organisms as a factor in the causation of scurvy, although this may take place, as the studies of Jackson and Moore[9] indicate. The absorption of abnormal decomposition products of proteins under these conditions may be chiefly responsible for the changes observed. The observation of Lewis[13] that there is no increase in the excretion of phenol in guinea-pigs fed an oat diet can have but little bearing on the extent to which protein is undergoing fermentative decomposition in the digestive tract of the animal, since phenol production is limited by the yield of aromatic amino-acids by the proteins which are being putrefied. Longcope[14] points out that the characteristic result of acute anaphylactic shock in guinea-pigs is the appearance of hemorrhages. He further states that "undoubtedly infection is the most important factor in the cause of nephritis in man," a view that has gained wide acceptance within recent years.

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[8] McCollum, E. V., and Pitz, W.: Jour. Biol. Chem., 1917, **31**, 229.

[9] Jackson, Leila, and Moore, J. J.: Jour. Infect. Dis., 1916, **19**, 478.

[10] Holst, A., and Fröhlich, T.: Ztschr. f. Hyg. u. Infektionskrankh., 1912, **72**, 1.

[11] Hess, A. F.: Infantile Scurvy, Am. Jour. Dis. Child., November, 1917, pp. 337-353.

[12] McCollum, E. V.; Simmonds, N., and Pitz, W.: Jour. Biol. Chem., 1917, **29**, 341.

[13] Lewis, H. B., and Karr, W. G.: Jour. Biol. Chem., 1917, **28**, 17.

[14] Longcope, W. T.: Harvey Lecture Series, 1915-1916, p. 296.

Recovery from scurvy following a change of diet, or an improvement of the bacteriologic condition of the food, or following the administration of substances having diuretic properties, may be more satisfactorily explained in other ways than by the assumption that such changes in the dietary regimen produce their effects because of the introduction of a hypothetic antiscorbutic substance. It is necessary, henceforth, that those who discuss the etiology of scurvy should take into consideration the results of recent researches in nutrition with simplified diets. Whoever would seek to establish the validity of the theory of the existence of a specific antiscorbutic substance should first furnish new explanations for the experimental results that are not in harmony with the antiscorbutic theory, rather than present new experiments that harmonize with this most attractive hypothesis.

PELLAGRA

One of the greatest public health problems, a practical method for the prevention and treatment of pellagra, has been solved by Goldberger and his associates. There remains little room for doubt that faulty diet is the primary factor in the causation of the disease, and that the inclusion of an abundance of milk in the diet will prevent an attack, or cause recovery. It should be mentioned here that my co-workers and I[6] have established the fact that it is not possible to secure diets derived solely from the seeds of plants, together with tubers and edible roots, which will adequately nourish either a young animal during growth, or long maintain health in the adult. Even mixtures of these foodstuffs together with liberal amounts of meat (round steak) fail to induce satisfactory nutrition in the growing young. There are, as is shown by their investigations, but two types of food mixtures which give very satisfactory results in the nutrition of experimental animals. These are: (1) combinations in which seeds, tubers, edible roots and meats are either singly or collectively combined with suitable amounts of the leafy portion of the plant, and (2) combinations of seeds, tubers, roots, meats and leaves, singly or collectively, with liberal amounts of milk.

The vegetable foods listed under 1 are, with the exception of leaves, all structures whose functions are those of storage organs. They consist principally of a reserve food package of proteins, starch, sugars, fats and mineral salts, but in the germ of the seed, and certain areas in the tuber and root, there are cellular structures which constitute actively metabolizing protoplasm. The leaf, aside from its skeletal tissues, is rich in cells, and a large part of it is active protoplasm. There goes with this difference in function between the leaf and the storage organs a corresponding difference in dietary properties. Seeds, tubers and roots, and probably likewise fruits, are deficient in three respects from the dietary standpoint. In all cases they are too poor in three inorganic elements, namely, calcium, sodium and chlorin; they do not contain a sufficient amount of fat-soluble A, and their proteins are of relatively low biologic value as compared with those of milk, meats and eggs. The leaf of the plant and milk are so constituted as to make good these deficiencies, when they are included in the diet in sufficient amounts. It is for this reason that I have recently introduced the term *protective foods,* to designate milk and the leafy portion of the plant. Meats supplement seeds, tubers and roots with respect to protein, but not efficiently with respect to the other deficiencies. Eggs should be classed with milk in their special food properties, but are not so rich in calcium when the shell is discarded. From the studies of Goldberger, it has been found that the diets of the peoples in those districts in which pellagra is found is derived in great measure from seed products, tubers and meat, principally fat pork. For an experimental attempt to produce pellagra in man, Goldberger selected a diet consisting of bolted wheat flour, degerminated corn meal, polished rice, sugar, starch, syrup, pork fat, sweet potatoes, cabbage, collards, turnip greens and coffee. I have calculated that about 95 per cent. of the total dry matter of this diet was derived from the endosperm of seeds and pork fat. There was present entirely too small an amount of the leaf (the sole *protective food*) to correct the faults in the rest of the food mixture.

In order to determine whether there is lacking from this list of foodstuffs any chemically unidentified food essential analogous to fat-soluble A and water-soluble B, McCollum, Simmonds and Parsons have fed to rats the mixture in the proportions employed by Goldberger, and in a series of experimental animals the same diet was fed supplemented with single and multiple additions of carefully purified foodstuffs. It has been shown[15] that it is possible to supplement this diet with known food principles, so as to make it sufficiently complete from the dietary standpoint to enable young rats to grow at a fairly good rate and to remain in a state of health. It seems necessary to conclude from this that the faults in such diets as are derived largely from seed products, tubers, molasses and fat meat, have essentially the same kinds of deficiencies as have seeds generally; but in diets in which the endosperm of the seeds predominates (polished rice, bolted wheat flour, degerminated corn meal) the deficiencies are much more pronounced than would be the case if the entire seeds were employed. Each of the more important cereal grains have been shown to require three kinds of additions to make them dietetically satisfactory.[6] These are the inorganic elements calcium, sodium and chlorin, a protein, and fat-soluble A, the unidentified dietary essential which is most abundant in butter fat and the fats of the egg yolk.

Chittenden and Underhill[16] have described in dogs what they believed to be a condition closely resembling pellagra in man, by restricting the animals for periods varying from two to eight months to a diet consisting of peas, crackers (equivalent to bolted flour) and cottonseed oil. They observed sloughing of the mucosa of the mouth, diarrhea, ulceration of the gastric mucosa, and skin lesions. They held the view that the cause was probably to be sought in the lack of some unidentified dietary essential of the class which Funk designated as "vitamins."

McCollum, Simmonds and Parsons[17] have demonstrated that this diet can be supplemented with carefully purified protein, the salts, calcium carbonate and sodium chlorid, and butter fat (fat-soluble A) so as to make it sufficiently complete to enable young rats to grow from weaning time to full adult size. This proves that there is no deficiency in this diet other than in the three now well recognized dietary factors. Rats that were brought to a moribund condition as the result of restricting them to a diet of peas, wheat flour and cottonseed oil showed at necropsy an apparently normal condition of the mucosa of the mouth and intestine. There was no diarrhea, and there were no skin lesions suggestive of pellagra in man. Partial loss of hair was observed.

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[15] McCollum, E. V.; Simmonds, N., and Parsons, H. T.: Unpublished data.

[16] Chittenden, R. H., and Underhill, F. P.: Am. Jour. Physiol., 1917, 44, 13.

[17] McCollum, E. V.; Simmonds, N., and Parsons, H. T.: Jour. Biol. Chem., 1918, 33, 411.

Jobling and Petersen[18] have made a very thorough study of the conditions in those parts of Nashville where pellagra occurs, and have reached the conclusion that the disease involves an infection, being especially prevalent in those districts where sewage disposal does not exist, and where flies have free access to human excreta, and the houses are unscreened. The Thompson-McFadden[19] Commission likewise believe that the disease is caused by infection. The studies of Jobling and Petersen show that the diet of pellagrins is derived during the greater part of the year from seed products, tubers, molasses and fat meat. It is at the end of winter, after several months on a restricted diet of this character, that the new cases and recurrences of old cases occur. During the summer, when green vegetables are obtainable, and the milk supply is better than during the winter, recovery takes place.

It cannot be definitely stated at present whether man will react to the continued restriction to such diets as those described, with the appearance of the syndromes characteristic of pellagra, without the agency of an infection. The infection theory cannot be dismissed at the present time, but it seems certain that if pellagra is the result of infection, the latter is always superimposed on a certain degree of debility that results most frequently from the adherence for a considerable period to a diet of a faulty character. It seems practically demonstrated that the faults of the diets that lead to the appearance of the disease are not due to the absence of any unidentified dietary essentials, but rather to poor quality with respect to three of the well known dietary factors.

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[18] Jobling, J. W., and Petersen, W.: Jour. Infect. Dis., 1916, 18, 501.

[19] Siler, J. F.: Garrison, P. E., and McNeal, W. J.: Pellagra, The Journal A. M. A., Jan. 3, 1914, pp. 8-12.

Whole Wheat Flour and a Balanced Diet.—Under these circumstances the plea for whole wheat flour in the American diet today fails of justification from this point of view. People should be allowed to select their roughage, whether in the form of fruits and vegetables, or in the form of whole grains. They should be allowed to select their mineral salts and vitamins in the same manner, and both are freely available. The legal distinction between food conservation and health propaganda must be kept in mind. It is argued in favor of whole wheat flour that its use might relieve or prevent constipation, rickets, scurvy, anemia and pellagra. But the function of a food administration is to secure and conserve food, not treat preexisting diseases in a compulsory manner, applied to the majority who are not afflicted, as well as to the minority who may be diseased but still possess the right to select their treatment. In each country at war diet fads are being pushed at the food administration, who must confine themselves to the specific functions defined by legislative authorization.—A. E. Taylor, "War Bread."

THE RÔLE OF ANTISCORBUTICS IN OUR DIETARY *

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From one standpoint our foodstuffs may be classified as essential and nonessential, according as to whether or not they are necessary for the maintenance of life and normal growth. Among the former group may be mentioned the proteins, inorganic salts, and the water-soluble and fat-soluble "vitamins" which recently have been the subject of so much discussion. In my opinion the essential group includes also a food factor that is a necessary component of the diet if we would be protected against the development of scurvy.

In view of the present lack of knowledge it would be fruitless to discuss the question of the exact nature of this food factor—whether it should be termed vitamin, whether it is indeed a food substance, or whether it should be regarded merely as an activator or catalyzer of the foodstuffs. What I wish rather to emphasize is that unless the diet of man includes food possessing this antiscorbutic property, scurvy will develop in due course of time. From this point of view, scurvy must be regarded as a deficiency disease. If, however, we would limit this term to diseases brought about by a deficiency of a definite chemical or biologic substance, then we are not at the present time warranted in thus classifying it. Nor is it necessarily true that scurvy is directly brought about by a lack of this accessory food factor. It is quite probable, as brought out elsewhere,[1] that the lack of this factor leads rather to the development of substances which in themselves occasion the symptoms of the disease.

I have introduced the subject from this angle as its entire relevancy depends on the question of whether there are or are not antiscorbutic foodstuffs. If the protective or curative value of such foods are, as McCollum and Pitz[2] have recently contended, merely dependent on their laxative properties, and interchangeable with laxatives, such as liquid petrolatum or phenolphthalein, then scurvy is in no sense whatsoever due to food deficiency, and has not a proper place in this symposium. Observations of many cases of infantile scurvy, however, have convinced us[3] that constipation plays no essential rôle in this disease. In reviewing the many cases that we have seen we find that the infants were not constipated to a greater degree than normal babies, and that the disorder bore no parallel relationship to the activity of the bowels. Furthermore, as brought out in a recent paper,[1] potato, which is a sovereign remedy for scurvy, is not a laxative, and malt soup preparations, which most readily lead to this disorder, are rather laxative than constipating. To this evidence may be added a recent experience that infantile scurvy does not yield to treatment by liquid petrolatum, but that its symptoms are rapidly alleviated by small additions of orange juice to the dietary, so small as to be without apparent effect on the bowels. In this connection we may add an observation that will be referred to again in its relation to the therapy of this disorder, namely, that orange juice, boiled and rendered slightly alkaline, may be given intravenously with signal success; this procedure leads to no laxative action, and it is evident that its effect cannot be explained in this way. The nature of the antiscorbutive potency of orange juice remains as much an enigma today as ever. Recently we made use of "artificial orange juice,"[4] prepared according to the formula of McCollum, who had found it of marked therapeutic value in the scurvy of guinea-pigs. After a trial of three weeks, however, it was found to be ineffective; on substitution of orange juice in the same dosage, the hemorrhage of the gums disappeared within a few days.

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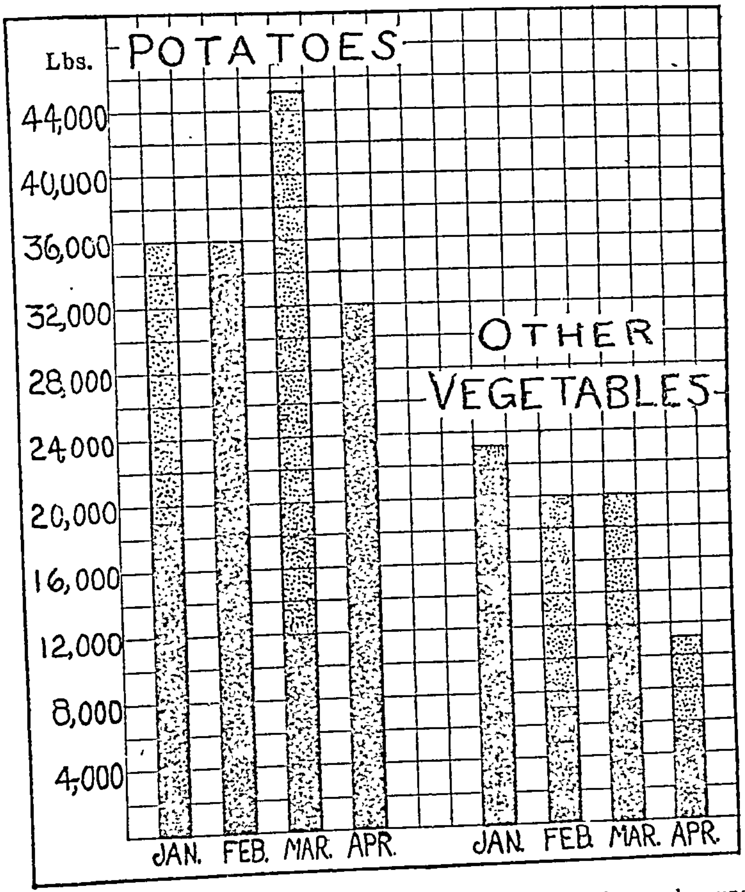
* Read before the joint meeting of the Section on Pharmacology and Therapeutics and the Section on Pathology and Physiology at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

[1] Hess, A. F.: Infantile Scurvy, Am. Jour. Dis. Child., January, 1917, p. 98.

[2] McCollum, E. V., and Pitz, W.: Jour. Biol. Chem., 1917, 31, 229.

[3] Much of this work has been done in conjunction with Dr. Lester J. Unger.

It will be of advantage to digress for a moment to say a few words concerning the relationship of the so-called guinea-pig scurvy to that of human beings. There is great danger of error in translating the results obtained on these animals directly into terms of the human disease. It would seem that much of the confusion of thought and difference of opinion at the present time as to the nature of scurvy is due to the fact that some are thinking of a disease which they have produced in animals, and others of scurvy as they have encountered it in man; furthermore, that some have brought about a disease in animals by means of one diet, whereas others have employed a diet of quite different nature. These divergences can be harmonized only by a study of the pathology of the disease. At present the diagnosis of scurvy in guinea-pigs, in most investigations, is based solely on clinical signs, uncontrolled by microscopic examination of the bones, in spite of the fact that there are osseous changes which are typical of this disease. The pitfall of omitting histologic examination may be judged when we state that recently we have found that guinea-pigs fed on certain diet may manifest typical signs of scurvy and yet microscopic examination of the bones suggests that we are dealing with rickets and not with scurvy. It would seem as if many of the results of Jackson and Moore[5] are to be interpreted in this way. Gerstenberger,[6] in a recent article, suggested that some of the scurvy in guinea-pigs might be rickets or pseudoscurvy. At any rate, if we are to avoid great confusion, and a repetition of an error similar to that which delayed for years the differentiation of congenital syphilis from rickets in human pathology, all reports of experimental scurvy should be controlled by careful pathologic examinations.



A comparison between the requisitioned quantity (in thousand pound units) of potatoes and other vegetables, and the quantity received per month by an institution in which more than 200 cases of scurvy occurred at the beginning of April, 1916. The total height of column represents the amount needed and requisitioned; the solid black portion the amount received. The number of inmates in the institution remained approximately the same. The chart illustrates our great dependence on the potato during the winter months. This is due not only to its intrinsic antiscorbutic potency, but, probably quite as much, to the fact that fully twice as many pounds of potatoes are consumed during the winter as of all other vegetables combined. Therefore, according to present dietary habits, if this crop fails or is dehydrated (devitalized), scurvy will develop in the spring.

Every individual requires a certain amount of antiscorbutic substance in his dietary, or, to put this statement in a broader way, every nation has need for a per capita quota of foodstuffs containing this necessary food factor, if scurvy is to be avoided. How much of this type of food is required, in other words, what is the antiscorbutic minimum for the individual or for the nation, is just as little known as is the minimum requirement of other so-called vitamins. The margin of safety over our annual supply is certainly not very great, assuredly not as large as the excess of water-soluble vitamin, which is so abundantly distributed throughout nature, and probably no greater than that of the fat-soluble vitamin, which McCollum has shown to be present to a considerable extent in milk, eggs and the leaves of plants. How scant is the margin of safety in some countries may be judged from the fact that in Ireland they are dependent for their health in this regard on the potato — when the crop fails, scurvy develops. That we in the United States are not entirely independent of the potato crop for our antiscorbutic supply was shown in 1916, when, as you remember, we had to depend on an exceptionally poor yield of the previous year. As a result of this potato deficiency, scurvy developed in numerous institutions in the spring; in one there were to my knowledge more than twenty deaths; in another, in which the amounts of vegetables, and more particularly of potatoes, received during the months of January, February and March were far below what were needed and requisitioned, as shown in the accompanying chart, scurvy broke forth in April and attacked more than 200 inmates. It may be added that when 200 cases of frank scurvy are diagnosed in an institution there are probably an equal number of latent cases which escape observation, for we must remember that it takes about six months of food deprivation for an individual to manifest scurvy.

Scurvy has not only a civil but also a most important military aspect. As is well known, it was at one time the scourge of armies. In de Joinville's account of the Crusade of Louis XI, we read of its attacking the troops in Palestine; in Lind's classic monograph on this disease, it is recorded that "when the Swedes carried on a war against the Muscovites, almost all of the soldiers of their army were destroyed by the scurvy."[7] But we do not need to retrace our steps so far to learn of the appearance of scurvy in the army. In the "Medical and Surgical History of the War of the Rebellion" we find the following statements:[8]

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[4] This artificial orange juice was prepared from pure inorganic salts, sucrose and crystalline citric acid in proportions similar to those found in the edible portion of the orange.

[5] Jackson, Leila, and Moore, J. J.: Jour. Infect. Dis., 1916, **19**, 478.

[6] Gerstenberger, H. J.: Am. Jour. Med. Sc., 1918, **155**, 253.

> "A scorbutic tendency was developed at most of our military posts during the winter season, after the troops had been confined to the use of the ordinary ration with desiccated vegetables. The latter in the quantities failed to repress the disease. At posts which could be readily supplied with potatoes only the taint was manifested, on account of a want of liberality in the issues." And again: "Among the white troops during the five and one-sixth years covered by the statistics, 30,714 cases of scurvy were reported; and 383 deaths were attributed directly to that disease."

In the present war, Harvier[9] has reported that he was surprised to find that among some 800 troops of which he had charge, at least 95 per cent. had scurvy in the spring of 1917, and that since then epidemic centers have been recognized outside of this sector.[10]

While I do not wish to overestimate the importance of this disorder, I do wish to lay stress on the fact that it is a disorder that must be considered both in civil and in military practice, and that unless we distinguish between those foodstuffs which possess and those which do not possess antiscorbutic value, scurvy will cease to be an exceptional disease. In this regard it may be of advantage to summarize some personal experiences with various antiscorbutics, a detailed account of which will be reported elsewhere. We have found that the bran and germ of the wheat seed and brewers' yeast—substances which are so effective in preventing beriberi—are of no value in warding off scurvy. Dehydrated vegetables retain but little of their antiscorbutic power. We have employed dried carrots in two cases of infantile scurvy, and have found it lacking in curative power. It will be remembered from the quotation cited above that such was the experience in the army in the Civil War. The vegetable which we tested had been heated to a temperature of only from 130 to 135 F. and was attractive in appearance and in flavor. However, "the accessory food factor" had evidently been destroyed. It was employed some weeks after drying, having been kept during the interval in paraffined bags. Feeding experiments with animals that were fed with dehydrated vegetables obtained from various sources led to the same result. We do not, by any means, wish to deprecate the use of dehydrated vegetables, for we appreciate their food value and the great advantage that they possess on account of their small bulk. However, I would emphasize the fact most strongly that they cannot be considered the food equivalent of fresh vegetables, and that unless they are given in conjunction with fresh vegetables, fresh fruit or other antiscorbutic, the dietary will induce scurvy. It is quite possible that improved methods of preparation, as regards the temperature or the state of moisture in connection with the dehydration may make it possible to overcome this limitation.

The same defect that applies to dried vegetables seems to hold in regard to fruits. From personal experience, at least, I can state that prunes, which are used so extensively in the dietary of infants, possess practically no antiscorbutic power. In this connection I may add that the banana, which would be of great value in this respect, on account of its ready preservation throughout the winter, seems to be singularly poor in antiscorbutic power.

It is clear that there is a need, not only of an exact inventory of antiscorbutic foodstuffs, such as has been recently undertaken by the Lister Institute,[11] but of efforts directed to enlarge their number. Looking toward this end, I suggested a few years ago the use of the orange peel, instead of or in conjunction with the juice of the orange, in the dietary of infants who are not receiving fresh food. Since this time I have made use of an infusion of the peel[12] in a large infant asylum, and found it entirely satisfactory. I bring this forward as a suggestion for making use of a waste food product. At a time when oranges are so expensive, and the cost of food has become such a serious item, both for the individual and for institutions, it seems as if this suggestion may be welcomed by the housewife and baby welfare stations. Some arrangement seems possible whereby hotels would save these orange peels for this purpose. By this procedure we obtain about twice the quantity of antiscorbutic material from the orange.

In closing I wish to revert to a subject I mentioned in the early part of this paper, namely, that orange juice, boiled and slightly alkalinized with normal sodium hydroxid, constitutes an excellent antiscorbutic agent for intravenous use. It can be given in doses of 1 ounce without occasioning the slightest reaction. This measure is of interest from the standpoint of the pathogenesis of this disorder, and on account of its rapidity of action might be of therapeutic value in combating a large number of cases of scurvy in the advanced stage of the disease.

There are some who are of the opinion that scurvy is of bacterial origin, that it is indeed an infectious disease. This point of view was maintained by the famous Boerhaave and supported by Villemin in the seventeenth century; it is held by many of the physicians in Russia today, and has been emphasized in a recent study on experimental scurvy.[5] To my mind, when an invasion of micro-organisms occurs it is to be regarded as secondary in nature and merely grafted on the nutritional disorder. I bring this aspect of the subject forward at this time to show the important relationship between nutrition and infection, and furthermore to illustrate by means of this example how simple foodstuffs are able to prevent and to cure a systemic infection. In the case of scurvy the fresh vegetables or fruits protect the tissues, not so much by increasing the immunity of the body fluids, but, as I shall show elsewhere, by rendering normal and impermeable the mucous membranes. This constitutes a most remarkable instance of the broad scope of dietetic therapy.

16 West Eighty-Sixth Street.

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[7] Lind, James: Treatise on the Scurvy, London, 1772, p. 178.

[8] Medical and Surgical History of the War of the Rebellion, Washington, 1888, Part III, pp. 683-684.

[9] Harvier, P.: Paris méd., 1917, **7**, 394.

[10] Undoubtedly scurvy has increased recently both in the civil and military population of the warring countries. We read of a marked increase of this disorder in the Poor Law hospital in Glasgow (Lancet, London, 1917, **2**, 21) as well as in the Poor Law infirmary of Newcastle (Brit. Med. Jour., 1917, **2**, 46). In both instances this increase is attributed to replacing potato in the dietary by bread. From Russia comes a report of the occurrence of 500 cases in Petrograd (Russk. Vrach, 1916, **15**, 1216). During the spring of 1917, according to Ferrari, an outbreak associated with neuritis invalided Italian troops on active service (Gazz. d. osp., 1917, **38**, 778).

[11] Chick, T., and Hume, M.: Tr. Soc. Trop. Med. and Hyg., 1917, **10**, 141.

[12] The orange peels are washed, grated, and added to twice their volume of boiling water. This is allowed to stand over night, then strained and is ready for use. Sugar is added when necessary to make it palatable.

A STUDY OF THE DIET OF NONPELLAGROUS AND OF PELLAGROUS HOUSEHOLDS

IN TEXTILE MILL COMMUNITIES IN SOUTH CAROLINA IN 1916 *

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In the spring of 1914, a series of investigations of pellagra was begun under the direction of the senior author which by the end of 1915 had yielded results that clearly showed the controlling influence of diet in both the prevention and the causation of the disease.[1] During the winter of 1915-1916 it was planned to supplement these in part epidemiologic but chiefly experimental investigations by a study of the relation of various factors (dietary, economic and sanitary) to the prevalence of pellagra in different types of communities. For various reasons it was decided to begin with a study of conditions in cotton mill villages, these representing one of the types in which pellagra was believed to be rather prevalent. In the present communication we present, in brief, some of the results of what we regard as an orientation study with respect to the relation of household diet to the incidence of pellagra. It is planned to present the full details in an official report of the work.

Seven villages in the northwestern part of South Carolina were the localities selected for study. None had more than 800 or fewer than 500 inhabitants. Of the households made up by this population only those of the white mill operatives were included in the study. The families of the mill officials, store managers and negro employees were not included.

PLAN OF STUDY

The investigation included two main divisions. One concerned itself with the determination of the prevalence of pellagra, the other with the collection of data relating to the family diet and income.

Prevalence of Pellagra.—For the study of the relation of household diet to pellagra it is of more than ordinary importance to secure as complete a record as possible of the prevalence of the disease. It was our opinion that reports of physicians, even with the fullest cooperation which we enjoyed, could not be depended on to give us a sufficiently full record, an opinion that subsequent experience has amply justified. Accordingly, to supply this fundamental need, a systematic search for cases by a house-to-house inspection was instituted (by G. A. W.) about the middle of April, 1916, and was continued every two weeks to the end of that year. So far as we are aware this is the first time that this expedient has been applied systematically and continuously over so long a period to the study of this disease. The confusing results of other workers in this field may in considerable measure be attributed to their having placed their main reliance on the, for this purpose, much too incomplete pellagra morbidity records supplied by reports of practicing physicians supplemented at most by a single house-to-house canvass.[2]

Diagnosis.—Only patients with a clearly defined bilaterally symmetrical dermatitis were recorded as having pellagra. In the course of the canvass, cases with well marked subjective symptoms were observed, but in the absence of a clearly defined eruption were recorded simply as "suspects." We think it important to invite attention to this definition of what, for the purpose of this study, constituted pellagra. It is the conventional clinical definition, but we feel that by thus restricting it we failed to include some cases that very probably should have been included. Another reason for inviting attention to this definition is that we (J. G. and G. A. W.) have been increasingly impressed by the suspicion of the possibility, if not the probability, that, so defined, pellagra includes at least two commonly associated but etiologically essentially distinct though closely related syndromes, namely, (1) the syndrome that is comprehended by the phrase "pellagra sine pellagra," and (2) the dermatitis or pellagra without or with only slight subjective manifestations. According to this idea or, perhaps better, suspicion, both syndromes are dependent primarily on a faulty diet; the former is to be regarded as the expression of a nutritive or metabolic failure, not perhaps entirely specific in character, and the latter as a reaction to a toxic substance or substances of a fairly specific type. The chief basis for this suspicion is the fact many times observed by clinicians that, on the one hand, the syndrome without eruption frequently occurs and recurs and each season may persist for months without recognizable eruption; and, on the other hand, that the eruption frequently occurs without or with but slight subjective manifestations.

In relating the incidence of pellagra to dietary conditions, cases were considered without regard as to whether they were first or recurrent attacks, provided only that the individual affected was a member of the household or dietary group for a period of not less than thirty days prior to the beginning of the eruption, the date of the appearance of which was assumed to mark the onset of the attack.

Dietary Data.— Our data with respect to diet relate to households and do not indicate any difference that might have existed, and in all probability did exist, in the diets of the individual members. Under the conditions of the study it was impracticable to obtain records of the diet of individuals. It was assumed that, having a knowledge of the diet of a considerable number of households, the outstanding characteristics of the diet of groups of these would be suggested in a general way, at least, when classified according to the occurrence or nonoccurrence of pellagra, economic status or other basis.

Information with respect to diet was secured by arranging with the stores at which the families principally dealt, for a record to be kept for us of every purchase of food by mill workers and members of mill workers' households during a specified period.

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* Read before the joint meeting of the Section on Pharmacology and Therapeutics and the Section on Pathology and Physiology at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

[1] Goldberger, Joseph: The Etiology of Pellagra, Pub. Health Rep., 1914, **29**, 1683. Goldberger, Joseph; Waring, C. H., and Willets, D. G.: The Prevention of Pellagra, Pub. Health Rep., 1915, **30**, 3117. Goldberger, Joseph, and Wheeler, G. A.: Experimental Pellagra in the Human Subject Brought About by a Restricted Diet, Pub. Health Rep., 1915, **30**, 3336.

[2] Siler, J. F.; Garrison, P. E., and MacNeal, W. J.: A Statistical Study of the Relation of Pellagra to Use of Certain Foods and to Location of Domicile in Six Selected Industrial Communities, Arch. Int. Med., September, 1914, pp. 292-373. Jobling, J. W., and Petersen, William: Epidemiology of Pellagra in Nashville, Tennessee, I, Jour. Infect. Dis., 1916, **18**, 501-567; II, *ibid.*, 1917, **21**, 109-131.

Immediately at the close of the selected period, trained enumerators under the immediate direction and supervision of one of us (E. S.) were sent to the village to ascertain the composition of each household with respect to the age and sex of the individuals included during the period and to determine the quantity and value of the articles of food obtained from sources other than the stores where purchase records were secured.

In order that dietary data may properly be related to pellagra incidence, it is clearly necessary that they be representative of the season immediately anterior to or, at least, coincident with the incidence of the disease—the season, that is, when more than at any other time the diet, if it have any relation to the incidence of the disease, may be expected to be most distinctively pellagra-producing, just as it may reasonably be expected that the diet is most distinctively pellagra-preventing at the season immediately anterior to and coincident with the rapid decline in incidence and the rapid clinical improvement of active cases. Curiously enough, in no previous study, so far as we are aware, has this vitally important seasonal factor been considered, and we venture to suggest this as one of the important contributing elements in the failure of previous American workers to discover any definite, significant relationship between diet and the incident of pellagra.

With the seasonal curve of incidence of the disease in mind, it was assumed that a record of the diet for the season between April 15 and June 15 would comply with the above mentioned requirement. It being manifestly impracticable to secure a record of the complete food supply of each household for this entire season, it was necessary to restrict ourselves to a sample period for which an accurate record would be practicable and which would be fairly representative of the diet of the season. For these and other reasons a fifteen-day sample or cross-section period was selected. As it was not feasible, with the limited personnel available, to cover all seven villages in the same fifteen-day period, the record of the food supply was secured in successive sample periods for single and pairs of villages, all seven villages being covered during the season April 15 to June 16. In all we obtained records of the food supply of 798 households with an aggregate population of 4,399 individuals.

The data thus secured are not, it should be noted, records of consumption but, rather, records of household food supply for a fifteen-day sample period. Since, however, but few of the households purchased in quantities large enough to constitute a supply for more than a fifteen-day period, the data, for practical purposes, may be considered as records of consumption plus refuse and waste.

In the computation of these data, the supply of any article or group of articles of food obtained by a household or group of households has been expressed in quantity per adult male unit, the Atwater[3] scale of food requirements for the sexes at different ages being used for this purpose.

In the analysis of our data, account is taken of several factors which might tend to obscure the results of comparisons between pellagrous and nonpellagrous households. Thus, some households for which we secured food records moved away soon thereafter and so passed from observation. Such might appear to have been free from pellagra, though in reality one or more cases may conceivably have developed in some of them shortly after passing from observation. Again, by restricting the diagnosis of pellagra to cases presenting a definite eruption, the result was that cases with poorly defined eruption and cases clinically pellagra but without eruption were, as already stated, not included, so that some of the households appearing in our records as nonpellagrous should perhaps more correctly have been classed as pellagrous. Another factor tending in some measure to obscure the results of the comparison of groups arises from the fact that in a few of the households classed as pellagrous the pellagra occurred late in the year, at a considerable time after the "sample" period; in such it is manifestly possible that the diet records were not fairly representative of the conditions in the period immediately preceding the onset of the attack. Accordingly, in the following comparisons of nonpellagrous with pellagrous households with respect to the "sample" of the diet in the season between April 15 and June 16, there have been included only those "nonpellagrous" households which continued under observation from April 15 to at least Oct. 1, 1916, and in which no one with suspicious symptoms was observed, and only those "pellagrous" households in which one or more cases of pellagra with clearly defined bilaterally symmetrical dermatitis occurred before Aug. 1, 1916, that is, not too long after the sample of the diet was recorded.

COMPARISON OF HOUSEHOLD DIETS

We have studied the diets of various groups of the households for which data were secured, but within the limits of the present paper can consider only the most representative types. For this purpose we have prepared Table 1, in which is shown the approximate average daily supply of the various articles of food entering into the diets of four groups of households, of which two are nonpellagrous and two pellagrous. The diets of pellagrous households here presented are, so far as known, the first in the literature giving a detailed quantitative statement of supply for a sample period of the season immediately anterior to or coincident with the peak of seasonal incidence of the disease.

For the sake of simplicity the diets are distinguished as Diets 1, 2, 3, and 4, and the respective groups of households will be similarly referred to. Diets 1 and 2 are those of nonpellagrous, 3 and 4 of pellagrous households. Of the diets of the nonpellagrous groups, Diet 1 is that of households belonging to the highest income group of families (from $14 to about $20 per adult male unit per fifteen-day period), while Diet 2 is that of households belonging to the lowest income group (less than $6 per adult male unit per fifteen-day period). Of the diets of the pellagrous groups, Diet 3 is that of households having one or more cases each, while Diet 4 is that of households with a minimum of two cases each. Economically, Group 3 is of the same low class as Group 2. Of the households comprising Group 4, fully three fourths are of the same economic class, and are included in Group 3. It follows, therefore, that economically Group 4 is very close both to Group 3 and to Group 2.

From the point of view of pellagra incidence as modified by the influence of economic status, Groups 1 and 4 may be considered as representing extreme contrasts, and accordingly Diets 1 and 4 may be expected to represent, and as will be seen, do represent, extreme types. The indications afforded by comparing them, however, must, on account of the economic factor, be checked and interpreted in the light of the indications furnished by comparisons between Diet 2 on the one hand and Diet 3 or 4, or both of these, on the other.

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[3] Atwater, W. C.: Principles of Nutrition and Nutritive Value of Foods, Farmer's Bull. 142, Washington, D. C., 1915, p. 33.

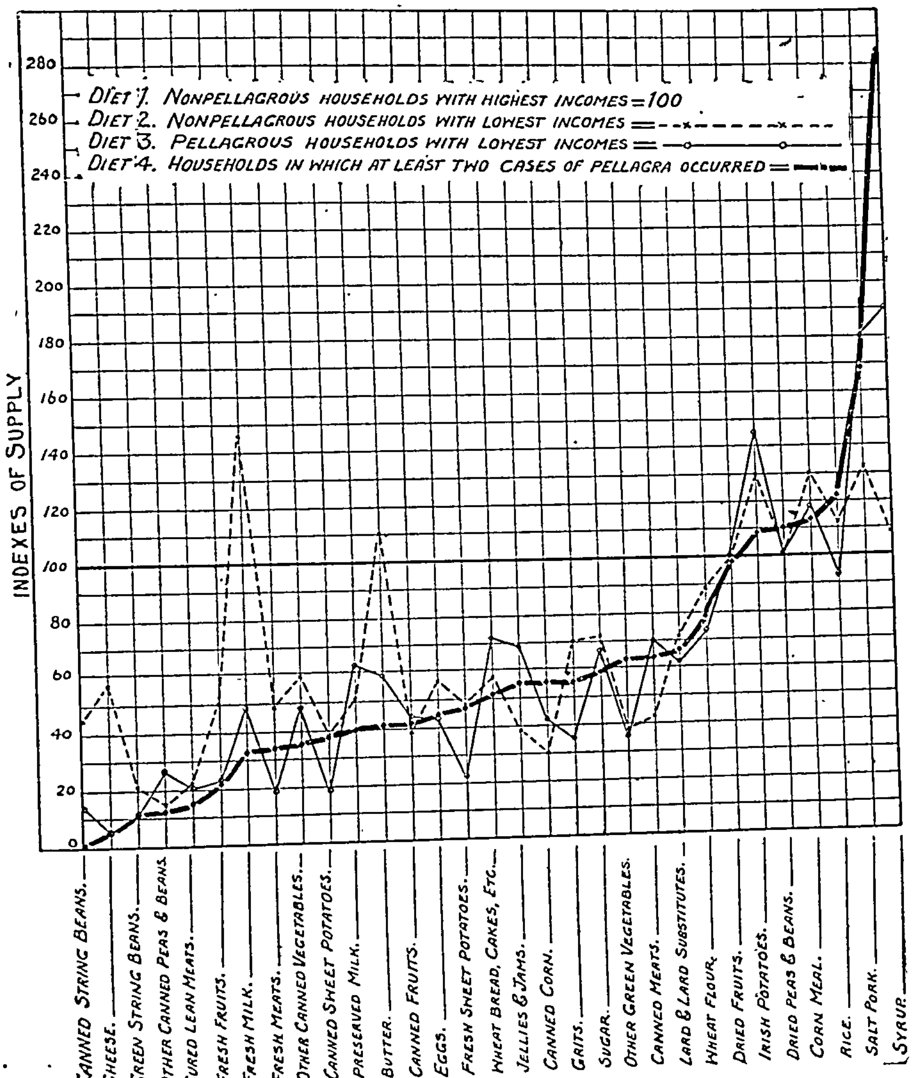

Chart 1.—Relative average daily supply of various articles of food of groups of nonpellagrous and of pellagrous households in seven cotton mill villages of South Carolina during a fifteen-day period between April 15 and June 16, 1916 (Table 1).

An examination of Table 1 and the graph (Chart 1) based thereon at once makes evident similarities and differences between the diets. The indications afforded by this examination are obscured by the confusing effect of quantitatively apparently unimportant single articles, such as cheese, for instance, and by the substitution of increased quantities of one article in one diet for a related food in another as, for instance, the substitution of salt pork for lard, and of syrup for sugar. In order to minimize these obscuring and confusing factors, related foods were combined into groups and the fuel value of each such group used as a measure of its importance in relation to the corresponding groups in the other diets.

The resulting groups, the fuel value of each, and the total caloric value of the supply in each diet are shown in Table 2, and the relative importance of corresponding groups in the graph (Chart 2) based on this table.

Considering the diets, first of all, with respect to total fuel supply, we find that the diets (3 and 4) of the pellagrous groups with 3,288 and 3,310 calories, respectively, are essentially identical in this regard, but clearly below that of either of the diets (1 and 2) of the nonpellagrous groups having 4,267 and 3,836 calories, respectively. As between the diets of the nonpellagrous groups, that of the group of poorer households (Group 2) appears to provide somewhat less energy than that of the group of households with highest income (Group 1). It is to be noted, however, that both of these as well as those of the pellagrous groups, even after making due allowance for waste, compare favorably with recognized standards, particularly so with the standard recommended by Chittenden.[4] It would follow, therefore, that the fuel value of the diet cannot be considered as in itself an *essential* factor in relation to the incidence of pellagra.

Turning now to details (Table 2 and Chart 2), we find that the diets (3 and 4) of the pellagrous households resemble each other closely not only, as already pointed out, with respect to total fuel value, but also with respect to the calories furnished by each of the seven groups into which the foods enumerated in Table 1 have been combined. By comparing with Diet 1 we find that the lower fuel values of Diets 3 and 4 are due mainly to a deficiency in supply of three classes of foods, namely, (1) meats, milk, etc. (the animal protein foods); (2) green vegetables, and (3) sugar, syrup, etc.

Considering only the contrast between Diets 3 and 4 on the one hand and Diet 1 on the other, the interpretation would seem to be suggested that the freedom from pellagra enjoyed by the nonpellagrous households with Diet 1 was associated with a more liberal supply of some one or some combination of the foods in the groups in which the pellagrous households with Diets 3 and 4 are notably short. If, however, we examine Chart 2 further we find that the diet (Diet 2) of the group of nonpellagrous households of lowest income at once resembles closely Diets 3 and 4 of the groups of pellagrous households, and differs from the diet (Diet 1) of the nonpellagrous households of highest income in substantially the same degree as do Diets 3 and 4, with respect to the supply from all groups of foods but one. This one is

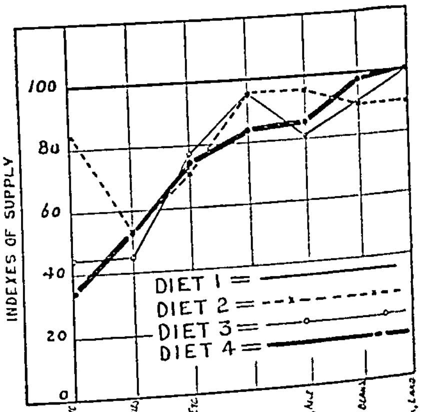

Chart 2.—Relative caloric value of groups of foods constituting the average daily supply of nonpellagrous and of pellagrous households in seven cotton mill villages of South Carolina during a fifteen-day period between April 15 and June 16, 1916 (Table 2).

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[4] Chittenden, cited by Lusk, Graham: The Elements of the Science of Nutrition, Ed. 3, Philadelphia, 1917, p. 347.

the group comprising the lean meats, milk, butter, cheese and eggs, the supply from which in Diet 2 is notably greater than in Diets 3 and 4 and but little short of that in Diet 1. Clearly, then, the freedom from pellagra of the households with Diet 2 is associated with a more liberal supply from this one group of foods. It would appear to follow, therefore, that the freedom from pellagra of the households of highest income (with Diet 1) can be considered as associated significantly only with the more liberal supply from the same source.

TABLE 1.—APPROXIMATE AVERAGE DAILY SUPPLY OF VARIOUS ARTICLES OF FOOD OF SPECIFIED GROUPS OF NONPELLAGROUS AND OF PELLAGROUS HOUSEHOLDS IN SEVEN COTTON MILL VILLAGES OF SOUTH CAROLINA DURING A FIFTEEN-DAY PERIOD BETWEEN APRIL 15 AND JUNE 16 1916

Articles of Food	Household Groups			
	Nonpellagrous		Pellagrous	
	With Highest Income† (Diet 1) Gm.	With Lowest Income‡ (Diet 2) Gm.	All with Lowest Income;§ with One or More Cases (Diet 3) Gm.	Majority with Lowest Income;¶ with Two or More Cases (Diet 4) Gm.
Fresh meats	48.9	19.9	9.4	16.3
Cured lean meats	54.0	11.8	11.1	8.1
Canned meats	25.1	10.6	17.5	15.7
Eggs	69.5	38.9	30.6	31.1
Fresh milk	379.3	554.0	187.2	126.9
Preserved milk	4.5	2.3	2.8	1.8
Butter	27.2	30.2	16.0	11.2
Cheese	3.6	2.0	0.2	0.2
Dried peas and beans	31.1	31.4	31.4	34.1
Canned peas and beans#	12.1	1.8	3.3	1.6
Wheat flour	145.4	398.6	323.1	351.5
Wheat bread, cakes and crackers	18.1	10.3	13.1	9.4
Corn meal	127.1	164.9	149.8	144.3
Grits	9.4	6.6	3.3	5.2
Canned corn	11.5	3.5	4.8	6.3
Rice	4.5	5.4	4.2	5.5
Salt pork	38.6	50.7	69.5	65.2
Lard and substitutes	52.8	37.1	32.0	34.7
Green string beans	31.7	6.6	3.5	3.4
Canned string beans	9.1	4.1	1.3	0.0
Other green vegetables	90.6	33.9	32.3	57.4
Other canned vegetables	56.2	32.9	27.8	19.9
Fresh fruits	*42.3*	21.1	9.7	10.1
Dried fruits	9.7	9.7	9.7	9.5
Canned fruits	37.4	14.5	16.6	15.7
Irish potatoes	48.9	63.7	71.0	53.1
Fresh sweet potatoes	7.9	3.9	1.7	3.9
Canned sweet potatoes	7.9	3.1	1.4	3.1
Sugar	55.6	38.6	37.1	32.0
Syrup	7.9	8.6	15.1	22.6
Jellies and jams	10.9	4.2	7.5	6.0
All other foods (cost in cents)	1.7	1.5	1.2	0.9

† Households composed of 209.4 adult male units.

‡ Households composed of 730.7 adult male units. Data were available for the following number of adult male units for the articles of food specified: fresh milk, 713.1; green vegetables, 726.3; dried fruits, 726.6.

§ Households composed of 134.6 adult male units. Data were available for only 117.1 adult male units with respect to fresh milk and butter.

¶ Households composed of 117.5 adult male units.

Exclusive of canned string beans.

With the view of testing this clearly indicated association further, we have analyzed our data with respect to the relation of pellagra incidence to variation in the supply of single foods.

Fresh Meat.—In the study of the relation of meat supply to incidence, we found that of 196 households whose average daily supply of milk was so small as not notably to influence pellagra incidence, that is, less than 250 gm. per adult male unit, 126 had a supply of fresh meat averaging in each less than 30 gm. per adult male unit per day, and of these, twenty-five, or 19.8 per cent., had one or more cases of pellagra; whereas of seventy that had a supply of fresh meat averaging in each over 30 gm. per adult male unit per day, only four, or 5.7 per cent., were pellagrous.

Milk.—With respect to fresh milk we found that of 368 households whose supply of fresh meat was minimal, that is, with an average of less than 30 gm. per adult male unit per day, 207 had a daily supply of fresh milk averaging less than 500 gm. per adult male unit per day, and of these, thirty-four, or 16.4 per cent., had one or more cases of pellagra; while of the remaining 161 having a daily supply of fresh milk averaging over 500 gm. per adult male unit, eight, or only 5 per cent., were pellagrous. The association of a markedly lower incidence with a liberal milk supply is indicated in another way. Of 127 households owning cows which supplied milk during the three months preceding the date of the canvass in the spring of 1916, two, or 1.6 per cent., were pellagrous; whereas of 451 not owning such cow, forty-seven, or 10.4 per cent., had one or more cases of pellagra. Even when due allowance is made for the possible influence of fresh meat or other possibly preventive food in the diet of the cow-owning families, the relative freedom from pellagra of such families is nevertheless very striking and significant. Its significance is enhanced when we note that in the group of no-cow-owning families, some enjoyed a liberal supply of milk by purchase from cow-owning families or other dairy.

TABLE 2.—APPROXIMATE CALORIC VALUE OF VARIOUS GROUPS OF FOODS* CONSTITUTING THE AVERAGE DAILY SUPPLY OF SPECIFIED GROUPS OF NONPELLAGROUS AND OF PELLAGROUS HOUSEHOLDS IN SEVEN COTTON MILL VILLAGES OF SOUTH CAROLINA DURING A FIFTEEN-DAY PERIOD BETWEEN APRIL 15 AND JUNE 16, 1916

Groups of Foods	Nonpellagrous Households		Pellagrous Households	
	With Highest Income (Diet 1) Calories†	With Lowest Income (Diet 2) Calories†	All with Lowest *Income;* with One or More Cases (Diet 3) *Calories†*	Majority with Lowest *Income;* with Two or More Cases (Diet 4) *Calories†*
Meats (exclusive of salt pork), eggs, milk, butter, cheese	762	639	338	270
Dried and canned peas and beans (exclusive of canned string beans)	126	113	115	123
Wheaten flour, bread, cakes and crackers, cornmeal, grits, canned corn, rice	2,162	2,082	1,752	1,840
Salt pork, lard and lard substitutes	741	673	718	745
Green and canned vegetables (exclusive of canned corn), green and canned string beans, fruits of all kinds	131	71	60	69
Irish and sweet potatoes	55	53	53	46
Sugar, syrup, jellies and jams	290	205	222	217
All foods	4,267	3,836	3,288	3,310

* Foods as purchased less nonedible portion. No deduction has been made for waste of edible portion. The computation of edible portion and the caloric value thereof is according to analyses published in Bulletin 28 (Revised Edition), U. S. Department of Agriculture (Atwater and Bryant: The Chemical Composition of American Food Materials). Because of the form in which it was necessary to obtain the data, the compilations are approximately correct, not absolutely exact.

† Calories per adult male unit.

It may here be recalled that Siler, Garrison and MacNeal,[2] as a result of their studies, concluded that the daily use of milk seemed to diminish to some extent the danger of contracting pellagra. When, however, one examines the data on which they base this conclusion, it quickly becomes apparent that in reality no conclusion was permissible or, at best (see their

Tables 82 to 88), the paradoxical conclusion that it is the use of milk "rarely" as well as "daily" but not "habitually" that diminishes the danger of contracting pellagra.

Our data did not permit of satisfactory study of the other foods, butter, cheese and eggs, of the same group. We hope that the larger mass of data collected in 1917 will prove to be more suitable for such analysis. It should be noted, however, that the indications afforded by the analysis presented with respect to fresh milk should be regarded as, in a general way, also representative of butter, fresh milk appearing in the diet of these people in the form, for the most part, of home-churned buttermilk and butter.

Dried Peas and Beans.—Analyses of the relation of pellagra incidence to the use of a number of other foods were made by us, but we shall at this time refer only to those in relation to dried peas and beans. Analysis of our data with respect to this group showed no significant variation in incidence with variation in supply, a fact which is clearly suggested in Table 2 and Figure 2. The present study fails to confirm, therefore, deductions from epidemiologic observations made by the senior author about four years ago with respect to the apparently important preventive value of the common varieties of dried peas and beans (cowpea, white bean, pink bean, lima bean). It is important to note, however, that in the light of various recent studies (Daniels and Nichols,[5] Daniels and Loughlin,[6] McCollum[7] and Osborne and Mendel[8]), this does not necessarily apply to other species, and probably still less to the immature or green stage, that is, to the green string beans. Indeed, our observations tend to indicate that the green string bean plays a rôle distinctly different from (probably diametrically opposite to) that of the mature bean in relation to the prevalence of pellagra. On this point, however, we hope to be able to present at a later date the more definite results of a continuation study now nearing completion.

DIETARY FACTORS

Calories.—Thus far we have considered the diets of nonpellagrous and of pellagrous households from the point of view, chiefly, of discovering possibly significant differences of a general character. It will be of interest now to consider briefly the more intimate make-up of these diets. Attention has already been called to their calorific value, which was found to compare favorably with recognized standards.

Protein.—Turning to protein, we find that Diet 1 supplies approximately 126 gm.; Diet 2, 105 gm.; Diet 3, 84 gm., and Diet 4, 85 gm. From this we see that the protein supply of the two groups of pellagrous households (Groups 3 and 4) is identical and also considerably smaller than that of the groups of nonpellagrous households, particularly of the households of highest income (Group 1). As with the fuel value of the diets, the supply of protein (even after deducting for waste) conforms fairly well to recognized standards.[9] This would suggest the interpretation that the total protein supply is in itself not an *essential* factor in relation to the prevalence of pellagra.

In view of the importance of the biologic quality of the protein, we have examined the sources of the protein supply of each of the diets here considered and find that in Diet 1, approximately 40 per cent. is derived from animal foods; in Diet 2, approximately 33 per cent.; in Diet 3, approximately 28 per cent., and in Diet 4, approximately 25 per cent. On the other hand, Diet 1 derived approximately 57 per cent. of its protein from cereals (wheat, corn and rice) and the common (including the canned) dried peas and beans; Diet 2, approximately 64 per cent.; Diet 3, approximately 68 per cent, and Diet 4, approximately 71 per cent. In other words, the protein supply of the nonpellagrous households tends to include, on the one hand, a larger proportion derived from animal foods, and on the other, a somewhat smaller proportion from cereals and dried legumes than does the protein supply of pellagrous households. With the work of Osborne and Mendel[10] and especially the recent work of McCollum[7] and his associates in mind, these facts would suggest that the protein mixture in the diets of the nonpellagrous households is likely to be of a somewhat better character than that in the diets of the pellagrous groups.

Carbohydrate and Fat.—With respect to the carbohydrates and fats considered together, the supply of these constituents, as measured by total calories from these sources, is identical in the diets of the pellagrous households but smaller in these than in those of the nonpellagrous. The proportion of total calories in the respective diets derived from these constituents is, however, essentially identical for all here considered. It is of interest to note further that the supply of carbohydrate, apart from fat, is somewhat smaller in the diets of the pellagrous than in those of the nonpellagrous households. This does not seem to support the suggestion made by Deeks[11] that the production of pellagra is dependent on the excessive consumption of carbohydrates.

With respect to the source of the fat supply, it is of interest and importance to note that, as might have been anticipated from what has gone before, both nonpellagrous groups enjoy a larger supply from such sources as milk and butter than do the pellagrous households.

Vitamins.—A study of Table 1 discloses the fact that with respect to recognized sources of the fat-soluble vitamin, the pellagrous households tend to be at a distinct disadvantage as compared with the nonpellagrous. This disadvantage is especially marked with respect to such sources as milk and butter. It follows, therefore, that the diet of the nonpellagrous includes decidedly more of the essential, fat-soluble vitamin (or vitamins?) than does that of the pellagrous.

As in the case of the fat-soluble, so with the water-soluble vitamin (or vitamins?), we can estimate the relative supply of this factor in the different diets only as these include a smaller or larger supply of the foods known to be rich in this constituent. Judging in this manner, the indications afforded by Table 1 are that the pellagrous have a somewhat smaller supply of this dietary essential than do the nonpellagrous households, though it would seem that the disparity in this instance is probably much less marked than in the case of the fat-soluble vitamin.

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[5] Daniels, A. L., and Nichols, M. B.: The Nutritive Value of the Soy Bean, Jour. Biol. Chem., 1917, **32**, 91-102.

[6] Daniels, A. L., and Loughlin, R.: Feeding Experiments with Peanuts, Jour. Biol. Chem., 1918, **33**, 295-301.

[7] McCollum, E. V.: The Supplementary Dietary Relationships Among Our Natural Foodstuffs, THE JOURNAL A. M. A., May 12, 1917, pp. 1379-1386.

[8] Osborne and Mendel: The Soy Bean as Food, Jour. Biol. Chem., 1917, **32**, 369-376.

[9] Lusk, Graham: The Elements of the Science of Nutrition, Ed. 3, Philadelphia, 1917, p. 345.

[10] Mendel, L. B.: Nutrition and Growth, THE JOURNAL A. M. A., May 8, 1915, pp. 1539-1547.

[11] Deeks, W. E.: Pellagra in the Canal Zone, Med. Rec., New York, 1912, **81**, 566-569.

Inorganic Constituent.—Reasoning in a somewhat similar way, and recalling particularly that the milk supply of the nonpellagrous households is notably more liberal than that of the pellagrous households, it would seem clearly indicated that the mineral constituent will tend to be superior (less likely to be defective) in the diet of the nonpellagrous than in that of the pellagrous household.

SUMMARY

To supplement the studies, chiefly experimental, of 1914 and 1915, a study was begun, in the spring of 1916, of the relation of various factors to pellagra prevalence in cotton-mill village communities in South Carolina. This paper presents briefly some of the results of the phase of the study dealing with the relation of household diet to pellagra incidence.

Pellagra incidence was determined by a systematic biweekly house-to-house search for cases carried on from April 15, 1916, to Dec. 31, 1916.

The diagnosis of pellagra was restricted to cases presenting a definite, bilaterally symmetrical eruption. It is suggested that, so defined, pellagra includes at least two commonly associated, etiologically distinct, though closely related, syndromes.

Data relating to household diet were secured by obtaining records of sale from the principal stores for a fifteen-day sample period during the season immediately anterior to or coincident with the incidence of the attack as suggested by the seasonal curve, supplemented by inquiries by a trained investigator.

Comparisons of diets of nonpellagrous with those of pellagrous households clearly showed that:

1. The nonpellagrous enjoyed a larger supply of the animal protein foods (lean meat, milk including butter, cheese and eggs).
2. Varying supplies of fresh meat were associated with a corresponding (inverse) variation in the incidence of pellagra.
3. Varying supplies of milk were associated with a corresponding (inverse) variation in the incidence of pellagra.
4. The calorific value of the diets of pellagrous households was somewhat less than that of nonpellagrous households, but this, nevertheless, conformed to recognized standards and could therefore not be considered as an *essential* factor in relation to the incidence of pellagra.
5. The total protein supply in the diets of the pellagrous households was somewhat less than in that of nonpellagrous households, but was not below Chittenden's standard, and therefore a deficiency in total protein would seem not to be an *essential* factor in relation to the incidence of pellagra.
6. The proportion of protein from animal food tends to be somewhat smaller, and that from cereals and the common mature peas and beans somewhat larger in the diets of the pellagrous than in those of the nonpellagrous households, and therefore the protein in the diet of the nonpellagrous was likely to be of somewhat better quality than that in the diets of the pellagrous households.
7. The diets of the pellagrous households included somwhat less of the carbohydrates than did that of the nonpellagrous, and therefore the production of pellagra is not necessarily dependent on an excessive consumption of this food constituent.
8. The diets of the pellagrous households had a decidedly smaller supply of the fat-soluble and likewise a somewhat smaller supply of the water-soluble vitamin than the diets of the nonpellagrous households.
9. The mineral constituent of the diets of the nonpellagrous households was likely to be superior—less likely to be defective—than that of the pellagrous households.

CONCLUSIONS

1. The indications afforded by this study would seem very clearly to suggest that the pellagra-producing dietary fault is the result of some one or, more probably, of a combination of two or more of the following factors: (1) a physiologically defective protein supply; (2) a low or inadequate supply of fat-soluble vitamin; (3) a low or inadequate supply of water-soluble vitamin, and (4) a defective mineral supply. In this connection it is of interest to note that McCollum, Simmonds and Parsons,[12] as a result of their studies of faulty diets in rats, believe that pellagra is primarily associated with the unsatisfactory character of three dietary factors, namely, a shortage of the "fat-soluble A," the faulty character of the inorganic moiety, and the relatively poor quality of the protein mixture.
2. The somewhat lower plane of supply, both of energy and of protein, of the pellagrous households, though apparently not an essential factor, may, nevertheless, be contributory by favoring the occurrence of a deficiency in intake of some one or more of the essential dietary factors, particularly with diets having only a narrow margin of safety.
3. The pellagra-producing dietary fault may be corrected and the disease prevented by including in the diet an adequate supply of the animal protein foods[13] (particularly milk, including butter, and lean meat).

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[12] McCollum, E. V.; Simmonds, N., and Parsons, H. T.: Pellagra-Producing Diets, Jour. Biol. Chem., 1918, **33**, 411-423.

[13] The possibility that other classes of foods may also serve this purpose is, of course, not excluded.

Decline in Infant Death Rate.—An infant mortality survey by the New York Milk Committee has been made public which shows that the efforts of the various agencies engaged in infant welfare work, as well as the work of the New York Milk Committee has been effective in reducing the infant death rate in New York City. The survey covers the calendar year 1917 for which the death rate was 88.8 per 1,000 living births. In 1907 the rate was 135.8. The number of infant deaths under 1 year of age for the year 1917 was 12,568 as against 16,000 in 1907. The report of the Milk Committee also contains figures from 163 of the largest cities which show with one exception decreases in the death rate. The lowest mortality for cities of 100,000 is found at Omaha and Seattle, which have 59.2 and 59.4, respectively. The low rate for the country is found at Alameda, Calif., where the rate is 40.7. Other cities of 50,000 that are only a fraction above this level are Brookline and Everett, Mass., La Crosse, Wis., and Berkeley, Calif. The highest mortality of the country is at Nashville, Tenn., which has a rate of 182.2 with a population of 110,364. Chicago exceeds New York in infant mortality by nearly 18 points and Philadelphia by 21 points. Other cities having an infant death rate of over 100 per thousand living births are Baltimore, 119.3; Pittsburgh, 116.2; Detroit, 103.6; Buffalo, 103.7; New Orleans, 113.5; Jersey City, 113.8; Louisville, 110.5; Syracuse, 101.9; Birmingham, 147.5; Memphis, 145.7; Richmond, 134.5; Fall River, 153.8; Grand Rapids, 134.9, and Albany, 103.2. Boston has 98.9.—*Medical Record.*

DIET OF THE U. S. ARMY SOLDIER IN THE TRAINING CAMP*

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The Food Division of the Surgeon-General's Office has completed detailed surveys of 227 messes scattered among more than 40 training camps in this country. Results of these surveys have been studied with some care and certain conclusions reached regarding the suitability of the Army ration as now provided.

Before proceeding to a discussion of these surveys, the messing system of the U. S. Army should be briefly described. Soldiers are fed by companies or units of corresponding size, such as batteries of artillery, troops of cavalry, squadrons of aviators, etc. The responsibility for proper feeding is placed by the Army Regulations squarely on the company commander. As a rule, the company commander details the supervision of the mess to a commissioned officer, commonly a second lieutenant, known as the mess officer. The purchasing agent for the company is a sergeant known as the mess sergeant. Certain articles of food are issued by the camp quartermaster every day. These are fresh meat and bread from the camp bakery. Other articles of food are issued in ten day periods on requisition by the mess sergeant. If, however, the sergeant desires to purchase something not carried by the quartermaster, he can obtain money in lieu of a certain undrawn portion of the ration for his men and purchase in the local market. The practice of different camps in this respect varies. Where the local markets are good, as much as 50 per cent. of the value of the ration may, on order of the commanding officer, be spent locally. The average, however, is not in excess of 35 per cent., the remaining 65 per cent. being issued by the camp quartermaster.

TABLE 1.—GARRISON RATION

	Ounces		Ounces
Meat	20	Flour	18
Beans	2.4	Potatoes	20
Prunes	1.28	Coffee	1.12
Sugar	3.2	Milk	0.5
Lard	0.64	Butter	0.5
Syrup	0.32		

Salt, pepper, cinnamon, vinegar and flavoring extract, a small fractional part of an ounce.

The garrison ration (Table 1) is the basis of feeding the soldiers in training camps. For calculation of the value of the ration, certain definite substitutions are made. For example, 70 per cent of the meat component is issued as fresh beef, 20 per cent. as ham, and 10 per cent. as bacon; 50 per cent. of the bean component is calculated as beans, and 50 per cent. as rice; 70 per cent. of the potato component as potatoes, 20 per cent. as onions, and 10 per cent. as tomatoes, etc.

The average value of the ration in the training camps since their organization last fall has been in the neighborhood of 39 cents per man per day.

Officers of the Food Division, organized as survey parties, have visited all of the larger camps once—many of them twice—twelve aviation camps, and a number of special camps, such as embarkation camps and quartermaster camps. In all, the number of men whose messes have been studied totals in the neighborhood of 60,000. Besides estimating the quantity of food supplied, wasted and consumed, these parties have made inspections of the food both in subsistence stores and at the mess houses and have given a considerable amount of instruction to mess officers and mess sergeants in the proper use of foods. The amount of food is determined by making an inventory of the stock on hand at the mess house at the beginning of a definite period, keeping account of all accessions to stock within the period, and a second inventory at the close. Concurrently the edible waste is separated, weighed, mixed, sampled and analyzed. These analyses have been made through the courtesy of Dr. Alsberg and his co-workers at the Bureau of Chemistry laboratories in several of the large cities. When the reports of these analyses are received, suitable deductions are made for wastage, and the actual consumption of food in grams of protein, fat and carbohydrate per man per day is computed.

TABLE 2.—STATISTICAL SUMMARY OF NUTRITIONAL SURVEYS

Nutrients	Food per Man per Day			Distribution of Fuel Value Consumed, %	Wasted, %	Per Man per Day
	Supplied	Wasted	Consumed			
Averages, 49 messes:						
Protein, gm.	139	12	127	14	9	Consumed cost, 41.39 c.
Fat, gm.	129	14	115	30	11	Waste cost, 3.57 c.
Carbohydrate, gm.	539	40	499	56	7	Total waste
Fuel value, cal.	3,980	343	3,637	100	9	Edible waste
Averages, 68 messes:						
Protein, gm.	139	11	128	14	8	Consumed cost, 40.82 c.
Fat, gm.	127	13	114	29	10	Waste cost, 3.51 c.
Carbohydrate, gm.	537	37	500	57	7	Total waste, 0.82 lb.
Fuel value, cal.	3,953	318	3,635	100	8	Edible waste, 0.45 lb.
Averages, 85 messes:						
Protein, gm.	139	10	129	14	7	Consumed cost, 41.58 c.
Fat, gm.	130	12	118	30	9	Waste cost, 3.41 c.
Carbohydrate, gm.	536	35	501	56	7	Total waste, 0.82 lb.
Fuel value, cal.	3,977	297	3,680	100	7	Edible waste, 0.43 lb.
Averages, 143 messes:						
Protein, gm.	139	10	129	14	7	Consumed cost, 42.55 c.
Fat, gm.	132	12	120	30	9	Waste cost, 3.10 c.
Carbohydrate, gm.	534	33	501	56	6	Total waste, 0.85 lb.
Fuel value, cal.	3,987	288	3,699	100	7	Edible waste, 0.44 lb.
Averages, 185 messes:						
Protein, gm.	138	9	129	14	7	Consumed cost, 42.17 c.
Fat, gm.	130	12	118	30	9	Waste cost, 2.99 c.
Carbohydrate, gm.	520	32	497	56	6	Total waste, 0.82 lb.
Fuel value, cal.	3,944	280	3,664	100	7	Edible waste, 0.43 lb.
Averages, 213 messes:						
Protein, gm.	138	9	129	14	7	Consumed cost, 42.75 c.
Fat, gm.	133	12	121	31	9	Waste cost, 3.00 c.
Carbohydrate, gm.	527	31	496	55	6	Total waste, 0.83 lb.
Fuel value, cal.	3,963	276	3,687	100	7	Edible waste, 0.42 lb.

In Table 2 the average amount of nutrients supplied, wasted and consumed for 49, 68, 85, 143, 185 and 213 messes is given. It will be noted that the average figures have changed but little with the different numbers of messes compiled, showing that the results actually represent average conditions. The total amount of energy supplied is just short of 4,000 calories; the amount wasted a little less than 300 calories, and the amount consumed in the neighborhood of 3,700 calories. The distribution of calories consumed for 213 messes is 14 per cent. protein, 31 per cent. fat and 55 per cent. carbohydrate. There has been a noticeable though small improvement in the amount of waste. For the first forty-nine messes studied, the amount was 9 per cent. of the total fuel value. For the 213 messes, the amount is 7 per cent. It will be noted that the cost of the ration as actually consumed is 42.75 cents, and the value of the waste is 3 cents. The reason the mess sergeant can spend 42.75 cents for food actually consumed is that the actual attendance at mess is only about 90 per cent. of the total number of rations authorized. The number of rations authorized by regulations is fixed by the morning report at the beginning of the ten day period. A large number of the men, however, leave camp Saturday afternoon and do not return until Sunday night, missing three or four meals out of the twenty-one. This makes the per capita cost of food consumed considerably higher than the value of the ration.

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* Read before the joint meeting of the Section on Pharmacology and Therapeutics and the Section on Pathology and Physiology at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

The actual average consumption of different articles of food as computed from the reports of the Survey Parties for 227 messes is given in Table 3. The total energy accounted for in the fifty articles of food included in this list is in the neighborhood of 90 per cent. of the total consumed; the other 10 per cent. is distributed over more than 100 articles used in very small quantities each.

TABLE 3.—AVERAGE CONSUMPTION OF FOOD

	Ounces
Fresh beef	9.15
All fresh meats together	11.51
Bacon, ham, sausage and frankfurters together	2.16
Bread	7.98
Total bread, including hard bread and flour	9.87
Total other cereals, such as oatmeal, cornmeal and farina	1.25
Beans, dried	1.01
Total beans, baked beans, peas, canned peas and canned corn	2.41
Total rice, hominy, macaroni, spaghetti and corn starch	0.97
Total potatoes	12.51
Total other vegetables	2.64
Total tomatoes	1.41
Total dried fruits	1.45
Total other fruits	1.47
Coffee	1.08
Sugar	3.39
Milk, evaporated	2.05
Butter and oleomargarine	0.51
Lard and lard substitute	0.69
Syrup	0.72

It is interesting to note first, that out of the 20 ounces of fresh meat, including bone, provided by the ration, only a little more than one half is consumed as meat. Of the total bread provided by the ration, less than one half is consumed as bread. Of the total 20 ounces of potatoes provided by the ration, 12½ ounces are consumed as potatoes. The result is a much better balanced dietary than that laid down in Army regulations. In fact, it is doubtful whether any soldier could long subsist on the Army ration as provided in the regulations. In the first place, he could not eat all of the ration, unless he were doing excessively hard work such as the work of a lumberman exposed to cold. In the second place, the Army ration as laid down in the regulations would provide too much acid ash, and in the third place, it provides an excessive amount of protein for a laboring man. By means of the ration saving system, however, the soldier is not obliged to eat what the regulations prescribe. The garrison ration is simply the basis for the money value of the ration.

The question arises whether the ration should not be readjusted to a basis more nearly approaching the basis of choice as actually expressed in the last ten months' experience. If this were done, the resulting ration could be issued in kind, that is, issued alike to all the men simultaneously. The advantages would be (1) reduction of waste by obliging organizations to secure their luxuries by exercising rigid economy; (2) guaranteeing a satisfactory distribution of nutrients; (3) the possibility of centralized purchasing and consequent reduction in cost to the government, and (4) training the men on a ration basis much more nearly approaching the requirements of field conditions.

A distinction should, however, be made between such a "training ration" and the actual field ration, after the manner of all the other allied armies. For example, the British home ration, used in the training camps in England, provides only 3,400 calories, whereas the field and trench ration provides 4,250 calories. The French normal ration, used in training camps, provides 3,300 calories, the strong ration, used in actual campaign, 3,600 calories. The Italian territorial ration, used in the training period, provides 2,500 calories, while the combating rations, used in campaign, provides 3,300 calories. The present garrison ration of the U. S. Army, if selected as written in the regulations and as used in computing the value of the ration, would provide nearly 4,800 calories. This is at least 500 calories in excess of any other army ration now used by the Allied armies.

There are hopeful signs that the messing of troops in training camps will in time be treated as a hygienic measure. If it is worth while to feed an athletic squad, undergoing training, at a training table where every article of diet is carefully scrutinized by the medical director, it requires no argument to show that the soldier, in preparation for the highly specialized work of modern warfare, should be fed with equal care. Physical fitness for emergency is much more important in the case of an aviator, an artillery observer, a signal corps officer, or a tank operator than in the case of a half-back or a stroke. This attitude has already been adopted by the Air Service Division of the Surgeon-General's Office, and a special request has been made for the assignment of nutrition officers capable of exercising skilled supervision of dietaries at aviation training centers. The Food Division has already rendered much assistance to these camps. Captains Eddy, Brewster, Gephart and Joseph have visited a number of these camps and have rendered much assistance in the supervision of mess conditions. At the special request of General Pershing, all the aero squadrons, sailing for further training in England, will be instructed by the Food Division in the use of the British home ration. That ration, it will be recalled, provides only in the neighborhood of 3,400 calories per man per day as against an available 4,000 calories in the average ration supplied to American troops in training during the past eight months. Special measures of economy are necessary in order that our troops may live comfortably on this ration.

There has been much improvement in the matter of food economy in all of the training camps since last fall. A number of reports have been received; for example, from Camps Funston, Travis, Sevier, Devens and Wadsworth, showing that in certain organizations the average edible waste per man per day has been reduced to less than one-tenth pound. The average throughout all the training camps in the United States is in the neighborhood of forty-two hundredths pound.

A number of problems in connection with the nutrition of soldiers still press for solution. For example:

What is the simplest corrective of constipation in the Army?
What is the best diet for an aviator?
Is there any danger in the use of dehydrated materials, now being shipped for use of the American Expeditionary Forces?
Will prolonged subsistence on a high protein diet produce injury to the excretory organs?
Is there any dietary factor involved in the etiology of trench nephritis?

The attention of medical men, especially interested in nutrition, is invited to these and kindred problems. The Food Division has already made substantial progress in the solution of some of them, but it will welcome aid from any source.

THE CIVILIAN WAR RATION *

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Never before in the history of mankind has war called for such a universal enlistment of labor and science as in the present conflict, and never before has victory depended on the support of the civilian to the extent that it does now. In fact, victory lies as much in the hands of the civilian as in those of the soldier. While duties rest on every one, man or woman, civilian or soldier, the responsibilities of the physician, in civil life as well as in uniform, are exceptionally great in the services he is called on to render and also in the influence that he may exert at home as well as at the front.

If food is to win the war, the fact must be thoroughly impressed on the civilian population, who will respond with far greater tangible results if led to cooperate intelligently rather than by compulsion. The civilian naturally looks on the physician as a leader and has the right to expect of him the ablest and safest guidance.

It was in anticipation of the needs of this nation that, nearly a year ago, the Carnegie Institution of Washington suspended the bulk of its activities in the Nutrition Laboratory of Boston to undertake an exhaustive study of the effects on metabolism, physical and mental fitness and endurance, of reduction of the daily food allowance, such as has been forced on several of the unfortunate European nations, and such as seriously threatens to become a necessity in our own country, for the benefit of the Allied cause.

A detailed survey of the entire research will shortly appear in a monograph of the Carnegie Institution of Washington, from the pen of Dr. F. G. Benedict, director of the Nutrition Laboratory of Boston. His collaborators are Dr. Walter R. Miles, H. Monmouth Smith, and myself. I believe that the publicity of such results as relate to the nation's present food problems should not be delayed, and advantage is taken of this great opportunity to offer this information to the medical profession.

DETAILS OF EXPERIMENT

Briefly stated, the problem was to submit normal men to a reduction of the daily food allowance sufficient to cause a comparatively rapid loss of body weight, equivalent to approximately 10 per cent. of the weight of the subject at the beginning of the experimental period. Then the food allowance was to be increased and regulated to prevent any further loss of weight while maintaining this reduced body weight for several weeks. This was to be done without materially interfering with the usual daily activities and duties of the subjects. Meanwhile, the subjects were to submit to numerous tests and observations relative to their metabolism, endurance and general physical and mental efficiency.

We were fortunate to secure for this strenuous program more than twenty-five volunteers from among the students of the Y. M. C. A. College of Springfield, Mass. Their contribution to the achievement of this research has been, to say the least, a noble and patriotic one, indeed.

These subjects are grouped into three classes:

1. Diet Squad 1, of twelve subjects, who were under observation for a period of four months, during which time their diet was controlled as stated above.
2. The control squad, of twelve subjects, whose diet was not modified or controlled in any way, but who were submitted to several control tests for a period of three months.
3. Diet Squad 2, of twelve subjects, recruited almost entirely from the control squad, and who, for a period of three weeks, were placed on a practically reduced daily ration averaging about 1,400 calories net.

The investigation carried out included:

1. A strict account of all the food served to the diet squads, and a determination of its calorific value.
2. A collection of all the urine of each subject of the diet squads, in twenty-four hour periods, and frequent collections of the stools for periods of several days each.
3. Almost daily determinations of the basal metabolism of each subject in Diet Squad 1, including careful estimation of the pulse and respiration rate, total lung ventilation and alveolar carbon dioxid tension. These observations were made at the Y. M. C. A. College in Springfield in laboratories equipped for the purpose by the Nutrition Laboratory of Boston.
4. Week-end trips, made alternately by each squad, to the Nutrition Laboratory in Boston, where numerous tests, bearing on the neuromuscular processes and mental condition of each subject, were conducted.
5. In Boston, spending of the night by the entire squad in a large respiration chamber constructed for the purpose of estimating the total metabolism of entire groups of subjects collectively.
6. Also a series of observations made on the efficiency of each subject during muscular work. This was accomplished by the use of a treadmill, inclosed in a small respiration chamber.
7. In addition, observations made on the body weight, measurements of body surface, strength tests, oral, skin and rectal temperature, blood tests, including hemoglobin, red and white cell and differential counts, and blood pressure.
8. Finally, the taking of photographs and motion pictures, making a most valuable addition to the record of the results obtained.

RESULTS

The effects of the prolonged reduction in the diet dealing primarily with basal metabolism were thus summed up by Dr. F. G. Benedict:

1. A gradual reduction in weight to a point 12 per cent. below the initial weight took place during a period of from three to ten weeks, with low calories and a moderate amount of protein in the food intake. The normal demand of the men prior to the dietetic alteration ranged from 3,200 to 3,600 net calories. One squad of twelve men subsisted for three weeks on 1,400 net calories without special disturbance.
2. After the loss in weight of 12 per cent. had been reached the net calories required to maintain this weight averaged about 2,300, or approximately one-third less than the original amount required.
3. At the end of the reduction in weight, the actual heat output during the hours of sleep, as computed by indirect calorimetry, was approximately one-fourth less than normal, thus giving a rough confirmation of the lowered number of calories found by actual measurement of the food intake. That there was no seasonal variation in metabolism was shown by the constancy in the metabolic level of the control squad.
4. The heat output by indirect calorimetry per kilogram of body weight and per square meter of body surface was essentially 18 per cent. lower than at the beginning of the study.
5. The analyses of food, feces and urine were sufficiently complete to permit a nitrogen balance to be made, and it was found that throughout the period of loss in weight and for some time subsequent thereto, there was a marked loss of nitrogen to the body. In round numbers these men each lost

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* Read before the joint meeting of the Section on Pharmacology and Therapeutics and the Section on Pathology and Physiology at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

approximately 150 gm. of nitrogen. There is an intimate relationship between this "surplus nitrogen" and the metabolic level. Removing what we may designate as "surplus nitrogen," we believe, distinctly lowers the stimulus to cellular activity.

6. The nitrogen output per day at the maintenance diet of 2,300 net calories was about 9 gm. A control group of twelve men, living substantially the same life and eating in the same dining room, but with unrestricted diet, showed a nitrogen output of from 16 to 17 gm. per day.
7. The pulse rate was astonishingly lowered. Many of the men showed morning pulse rates as low as 33, and daily counts of 32, 31 and 30 were obtained; at least one subject gave six definite counts on one morning of 29.
8. The blood pressure, both systolic and diastolic, was distinctly lowered.
9. The skin temperature, as measured on the surface of the hands and forehead, was, with some subjects, considerably lower than normal. With most of the men, normal temperatures prevailed.
10. The rectal temperature was practically normal.

The general picture that the men presented at the end of the test, or at their minimum weight, was one of noticeable emaciation, particularly in the face; but all the men continued the usual college activities with no obvious reduction in stamina.

Two of the men had chronic nasal disorders. One was operated on during the test and the other should have been. Aside from these two, the prevalence of colds during the period was about the same as with the other college students. During the study three men underwent ether narcosis for operations (on nose, foot and for hemorrhoids) and made rapid recoveries. One man at the lowest period of weight became infected with typhoid, ran through a course of very high fever, and was critically ill for some time; he has made a complete convalescence and recovery and has returned to college.

The most noticeable discomfort experienced by the subjects was a feeling of cold, which it is only fair to say might be due in large part to the severity of the past winter. In general, notwithstanding the very great reduction in the metabolism (which we believe was due to the removal from the body of the stimulus to cellular activity of approximately 200 gm. of "surplus nitrogen"), the whole period of lowered food intake had no untoward effect on the physical or mental activities of these men, and they were able to continue successfully their college duties.

The control squad, having demonstrated the absence of a seasonal variation in metabolism for about three months, was put for a period of three weeks on a restricted ration of less than one-half the previous calory consumption. In all details the picture exhibited by the first squad was strikingly duplicated by the second squad, although, as the loss in weight was obviously not so great (6 per cent. as compared with 12 per cent.), the phenomena were quantitatively somewhat less emphasized.

The alveolar carbon dioxid tension of every subject remained constantly normal.

As a result of numerous tests of the neuromuscular processes, Dr. Walter R. Miles found that there was no material change as a result of the reduced diet. There was a very slight falling off in the strength tests with the hand dynamometer.

The observations of Dr. H. Monmouth Smith on muscular efficiency in horizontal walking on the treadmill showed a decreasing energy requirement from 0.61 gm. calory to 0.52 gm. calory per horizontal kilogram meter, after four months' reduction of the diet to about two thirds of the normal. This amounts to an increase in efficiency of approximately 14 per cent. over and above the economy of energy requirement due merely to the reduction in body weight. In fact, the total gain in economy amounted to 14 per cent. for Diet Squad 2 after twenty days of reduced diet, and to 22 per cent. for Diet Squad 1, at the end of the four months of reduced food allowance.

APPLICATION OF THE FINDINGS

Whatever bearing the facts revealed in this research may have on the economies of life in time of peace, no hesitancy should stand in the way of adopting for civilians, in times of need like the present, war measures of food conservation that would result in enormous gains without endangering the efficiency of the civilian population. It is to be clearly understood, however, that the diet of the growing child should never be voluntarily reduced.

The reduction of diet can safely include all food principles, proteins, as well as carbohydrates and fats. Chittenden's low protein diet is shown by these experiments to be fully practicable, a fact of no little importance, as it relates to the most expensive source of food material.

Many would be benefited by dropping occasionally or regularly one meal per day. No matter what measure of reduction is adopted, the total calorific value of the daily ration could ordinarily be cut down one third or even one half, for a considerable length of time. The frequent use of the scales will be the indubitable proof of one's actual cooperation in this method of food conservation.

We have found the use of bran and the liberal serving of coarse green or cooked vegetables of considerable value, not only in minimizing the cravings of an unsatisfied appetite, but also in avoiding constipation due to lack of bulk in the diet. Indeed, it was evident with our subjects that hunger was appeased, temporarily at least, just as effectively by a bulky meal of low calorific value as by a less bulky one of greater calorific value. The free use of fresh fruits also will prove to be of inestimable value. Even water drinking, before and during the meal, when not contraindicated, will serve as an effective means of taking off at least the keen edge of the appetite.

Eating between meals is a very important source of food waste, which, with the average student, amounts to at least 10 per cent. of the daily intake of food. Enormous curtailment in the indulgence in candy and food luxuries is today the plain duty of every patriot. The weekly "candy day" should be adopted by all, even children, unless the use of candy is entirely abandoned, as could be done to advantage. The use of water alone to relieve thirst should replace the use of other drinks, especially those containing sugar.

However, it must be recognized that those in occupations entailing considerable physical exertion will of necessity require a proportionately greater consumption of food material, especially of starches.

CONCLUSION

The assurance of the safety of the adoption of even a considerable curtailment in the daily food allowance of the adult population will prove to be of no small incentive to an enthusiastic response as a patriotic service, and to this end the physician should stand ready to pledge unbounded cooperation.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. MCCOLLUM, HESS, GOLDBERGER, WHEELER AND SYDENSTRICKER, MURLIN AND ROTH

Col. Victor C. Vaughan, Ann Arbor, Mich.: Concerning Dr. Goldberger's paper, permit me to say that last fall Surgeon-General Blue of the Public Health Service asked Dr. William H. Welch of Johns Hopkins University and me to go over Dr. Goldberger's work, both theoretically and practically, and make a report to the Surgeon-General concerning it. We went to Spartanburg, S. C., and there studied the statistical work done by Dr. Goldberger and his assistants. At that place we also visited the hospital which is maintained by the Public Health Service for those who have pellagra. In the neighborhood of Spartanburg we visited a large number of cotton mills, in which the observations recorded by Dr. Goldberger had been made. Subsequently, we proceeded to Milledgeville, Ga., and visited the insane asylum in which Dr. Goldberger has been carrying on his observations and experiments for more than two years. This is a large asylum, housing about 4,000 patients. Two years ago and more Dr. Goldberger took charge of one colored and one white ward in this asylum. Cases of pellagra were in all the wards. Dr. Goldberger changed only the diet; in addition to the ordinary food furnished the inmates, he supplied additional animal food. Pellagra has wholly disappeared from the wards under Dr. Goldberger's care, and has persisted in all other wards. When the experiment was begun, these two wards contained a large number of pellagrins, all of whom have recovered, and in none of whom has there been seasonal reappearance of the disease. From time to time patients have been added to these wards, and within a few weeks have recovered completely, so far as pellagra is concerned; while in all other wards the disease has persisted. Here we have two wards in a large asylum with the inmates of all wards living under exactly the same conditions with the exception of diet. In the two wards placed on a liberal diet, pellagra has disappeared, while in all other wards it has persisted. This is one of the most striking and successful experiments that I have ever seen, or, so far as I know, has ever been recorded.

After a careful study of all the publications on pellagra, those of Dr. Goldberger and his assistants and those of his opponents, and after a thorough study on the ground, Dr. Welch and I have been thoroughly convinced that Dr. Goldberger and his assistants are right in their claim that pellagra is a disease of malnutrition. He does not claim to have discovered, as yet, the exact food constituents, the presence of which or the absence of which contribute to the development of this disease, but he has demonstrated that it may be caused by a diet poor in proteins; that when it exists it disappears under a liberal diet, and that pellagra may be wholly eradicated by proper feeding. Dr. Goldberger properly insists that it is not enough in an experiment of this kind to show that individuals are supplied with proper food; it must be demonstrated that they eat it. Supplying a family with proper food does not mean that every individual in that family eats the proper kind of food. During the past few months, in some of the Southern camps it has been found difficult to induce certain men, especially those from the rural districts, to eat the liberal, varied and scientific diet furnished in the soldiers' rations. These young men have always eaten corn bread, side meat and syrup, and if they can get these things, they will eat nothing else. Appetite is not always a safe guide; it depends more on habit than physiologic fitness.

Dr. Eugene Lyman Fisk, New York: I would like to have Dr. McCollum say something about the relationship between complete fasting experiments and the so-called deficiency diseases. In the complete withdrawal of food every possible food element is absent, and yet in such experiments these characteristic changes do not develop.

Dr. Charles W. Greene, Harriman, Tenn.: We have certain comparative results produced by certain experimentations on this problem, and I would like to state the case: We have fishes that migrate from the sea into the fresh waters for spawning purposes. This is one of that group which we know in general terms as the king salmon, which takes from three to five months in making its migration, running from the ocean through the Golden Gate into the head waters of the Sacramento. Extensive changes take place in these fishes, the details of which do not necessarily fall in this discussion, but resulting, roughly speaking, in very marked changes in the proportionate composition of the constituents of the protoplasm; yet these animals give off energy very active and very aggressive in their physical manifestations of energy, up until perhaps the last few days before they die; and even that takes place almost immediately after the spawning. I have seen mixed specimens collected for practical spawning purposes that showed an extreme vitality and vigor just at the time of the collection. Those are held in spawning pens, so called, and in two or three days these same specimens will have died. That often is the culmination of changes taking place in the composition of the fish; but so far as I can see, it is rather a difficult problem to assume that these changes are necessarily traceable to deficiencies in the diet that they took some five months before. If it is possible to leave in the problem in relation to the feeding experiments of such animals as the king salmon, I would like to have an expression of opinion from a man so skilful in interpreting detailed data as Dr. McCollum.

Dr. E. V. McCollum, Baltimore: In experimental polyneuritis a characteristic change is a degeneration of the motor cells. I have submitted a number of animals with experimental xerophthalmia to pathologists, and they assured me they could find nothing wrong with them other than changes affecting the eye structures.

Dr. Goldberger's observation that pellagra does not occur among those who use milk liberally, coupled with the observation that many patients recover during the summer when string beans, turnips, tops of greens and other leafy vegetables find a prominent place in the diet, correlates in every way with our observations on experimental animals. The string bean would seem to be analagous to the leaf in its dietary problem. In other words, while the pod is functionally active, it has the dietary properties of the leaf. The seed of the bean is quite a different thing, from the dietary standpoint.

Dr. H. Gideon Wells, Chicago: During the past year I had opportunity to observe one of the largest mass experiments on human deficiency disease of recent times. It will always be a source of regret to me that I was not able to give this opportunity the study it deserved, but I was assigned to work on a more acute problem, that of typhus fever. I was in Roumania last summer and autumn for a brief period; and, as you all know, Roumania has suffered from starvation during this war as almost no other country has. So severe has been starvation that even during the harvest months of September and October people were dying of starvation in great numbers. Under these conditions, deficiency diseases were particularly to be seen and observed, and the conditions were peculiarly good for studying them, because we had an opportunity to contrast two sets of people, differing not at all in geographical situation or in opportunities for caring for themselves, but who differed in their habits of diet—that is, the Russians and the Roumanians. The deficiency diseases among these two sets of people were quite different, and their dietary habits were different. As you went down the Russian and Roumanian fronts, and saw where pellagra occurred and where it did not occur, the thing that stood out, in a way that you could not get away from, was that where there was pellagra the chief article of diet was always yellow corn; and where you have corn you have pellagra. There was starvation and scurvy among the Russians, but the Russian's fundamental dietary article was black rye bread and beans.

Before the war pellagra was common in Roumania. I was told that there were from 60,000 to 80,000 cases before the war. Pellagra occurred only in the districts of Roumania where this limited diet was prevalent. It occurs in direct proportion to the extent that the people cannot supplement "mamaliga," or corn meal mush diet, with other foods.

Last summer, after having been in the war about a year, the Roumanians were beginning to observe just what the Austrians on the other side of the line observed after they had been in the war for a year; and that was a form of edema which, at first, they thought was an acute nephritis, with dropsy, face, feet and hands swollen, but with no renal changes. This disease is described in Germany as the "Kriegsoedem," or war dropsy. This was beginning to appear in Roumania among the people who had been most seriously deprived of food. You will notice in the usual dietary of the Roumanians an evident deficiency in fats. They cannot afford to eat the butter that they make, and while they use the cows and oxen for transportation purposes, they do not seem to get very much milk from them. We found, as far as we had time to observe it, that when these patients were given butter fats they were likely to get better. But, of course, when under treatment they always got milk, soup and other things. Another thing about pellagra that was quite striking was that before the war, in Roumania, as in most countries, pellagra occurred chiefly in adults, presumably because it takes a great many years of dietary deficiency of ordinary degree to produce it; but in those districts of Roumania in which the war had reduced the diet almost solely to corn meal mush, they find a very acute form of pellagra in children 5 or 6 years of age. So the thing that stood out all the time in our observation was: yellow corn and pellagra.

Dr. E. V. McCollum, Baltimore: I neglected to reply to the question that Dr. Hess asked in regard to whether we made any histologic examination of our animals suffering from experimental scurvy. No such observations were made by us. We took as criteria of scurvy the swollen and hemorrhagic condition of the joints. We assumed that the disease was scurvy in the light of the observations of Drs. Jackson and Moore, who made such histologic examinations of guinea-pigs which were brought to a state of scurvy by the same procedure. In all cases we induced scurvy in our animals by feeding a diet of oats and milk. In all the work we have done with rats, heating foods for an hour to an hour and a half at 15 pounds pressure apparently does not cause marked deterioration in the quality of the foods.

Dr. Ralph G. Mills, Seoul, Korea: The experience of which I wish to speak is one involving several million people and extending over about 4,000 years. In other words, it affects the Korean people, among whom I have been working for the last ten years. These are all more or less short of food, and yet they do not have pellagra or rickets or scurvy. However, I do find a little beriberi; and that is, so far as we have been able to tell, of more recent origin, being found only among the young Koreans, the more wealthy people, who are able to afford the Japanese rice, which, as compared with the Korean rice, is more highly polished and higher in price. Being whiter in appearance, it attracts them. The physical deficiency of the Korean people is only to a slight extent manifest. That is, the race, as a whole, is slight and rather tall. We see very few fleshy people among them. The chief difficulty is that there is a certain amount of mental sluggishness, not widespread—I mean not intensely bad when you compare it with the mental tests comparable to those used in our own schools. The Korean child is two or three years behind the average American child of the same age. Just what the cause of this is, is hard to say. These same children are more susceptible to tuberculosis under the same conditions that would prevail in schools in this country; and, therefore, there are these two and other reasons which make us feel that there is something radically wrong with the Korean diet.

Investigation in this has just been begun. One of the first things found was the excessive use of rice. Rice, in itself, contains a great deal of nutriment, and the actual amount that the Korean gets daily is sufficient for his nourishment, if he could use it all; but apparently he gets so much that the actual bulk of it interferes with his digestion. Intestinal disturbances are common. Living on a very small amount of meat, with a lot of dried fish, you would expect to find but little intestinal trouble, and almost complete absence of indicanuria. The metabolism of the people is at a low ebb. The creatinin figure is not over half of what it is for America. On the other hand, the resistance has been increased toward certain infections. Ordinary infections do not seem to take hold of them as much as we would expect to find under the circumstances; but there is an increased susceptibility to diphtheria; so that, while in certain phases of their life we get deficiency, possibly it is made up in other ways, and it may have balanced it.

Dr. William Moore, St. Paul: I spent three and one-half years in South Africa. The chief diet of the natives of Africa is corn meal, usually white corn meal, not yellow corn. The ordinary Kaffir boy in service, or at work, usually receives corn meal as his main diet. I do not remember that I ever saw a Kaffir boy drinking milk; it is not served as a portion of his diet. He may receive about 5 or 6 cents' worth of meat once or twice a week. I think the rickshaw boys in Durbin are required to have meat twice a week. It is what they call "boy's" meat; it keeps them in good healthy condition. They eat very little vegetables. Oftentimes they will dig up meat that has been buried. They may bring up the question of their having a sufficient amount of meat, but it is oftentimes decomposed meat; but their primary diet is corn meal, and I have never heard of a case of pellagra out there.

Dr. Arthur D. Hirschfelder, Minneapolis: I would like to ask the speaker whether there is any relation between the inorganic salts of these different diets, especially as to sodium, potassium and calcium, and possibly magnesium, in the diet? Certainly in some cases of angioneurotic edema the disturbance may be associated with excess of sodium as compared with potassium, and, as Wright found, these cases sometimes subside under calcium. It seems to me possible that some of these specific variations in diets, in deficiency diets, might be associated with variations in the mineral content rather than in the organic constituents. I would like to ask whether there is any evidence on the subject?

Dr. Alfred F. Hess, New York: In relation to what has just been said as regards scurvy, it was for a long time thought that potassium had a direct relation to scurvy, particularly as all the fresh vegetables and fruits are rich in potassium; but it was shown that by adding inorganic potassium to the diet scurvy could not be prevented or cured. It was then thought that it had to be in organic form. But it was shown that the antiscorbutic property of the various vegetables and fruits had no direct relationship to their content of potassium. It was thought, then, that calcium had a direct relationship. Orange juice is very rich in calcium, but, on the other hand, some antiscorbutics are not. Diet rich in sodium will not bring on scurvy. This was an idea formerly thought to be the case, in view of the salt diet, the salty meats; but they have been shown to bear no exact relationship.

I asked Dr. McCollum whether he had examined the histology of the bone of the guinea-pig, on account of an experience which I had. I fed some guinea-pigs on the diet which he used, and some of these pigs developed apparent scurvy, with swelling and thickness of the joints. When I examined these histologically, I was most surprised to find a picture resembling rickets with osteoid tissue.

I do not want to interpret Dr. McCollum's results, especially in view of the fact that he has carried out such a large amount of excellent investigations, but I think there must be some way of making our results conform. It is possible that we are dealing with different diseases, as we are using different diets. I have examined the bones of the animals of which I speak, and they show typical scurvy. In regard to such a simple question as constipation a person cannot be mistaken. You cannot prevent the onset of scurvy by giving liquid petrolatum.

When you give these animals dried vegetables, they develop scurvy. If you give them fresh carrots, they are cured of it. Or if you feed animals on oats and hay, they develop scurvy. On oats and grass they will not develop scurvy. The only difference between the hay and the grass is that the grass has been dried in the sun; not at any high temperature.

Finally, I want to say a word again about the dried vegetables. I realize that dried vegetables are of great value, both because they can be utilized throughout the winter, and because they have the same caloric value as the fresh vegetable; but I think we make a great mistake and will get into trouble if we spread the propaganda among the laity that the dried vegetable is the equivalent of the fresh vegetable. I am sure, as the result of the misinformation, that we will have scurvy among individuals and in institutions. If, however, we say that dried vegetables have great food value, and may be used to half the extent, the other half being fresh vegetables, then I feel sure there will be no danger. This danger is intensified if we are to dry potatoes. In the winter time we depend largely for our our fresh food on potatoes, partially also on carrots and turnips. If we dry not only vegetables in general, but also potatoes, and thus cut off fresh food throughout the winter, I am sure that in the spring we shall have scurvy in civil as well as military quarters.

Dr. Joseph Goldberger, Washington, D. C.: A number of interesting questions have been raised; one of them the age-old question of the relation of maize to pellagra. Professor Wells' observations of the relation of corn to the prevalence of pellagra in Roumania is, no doubt, correct. This has been repeatedly observed, and it applies also to Northern Italy; but the interesting thing is the interpretation to be put on this observation. We have just had evidence presented that in South Africa they have no pellagra, even though they eat white corn. Clearly corn cannot be an essential factor unless its color is of importance. Progress in clearing up this problem will be more rapid, I think, if we consider it as a question of a faulty diet rather than one of a particular food. No one subsists on corn or rye exclusively; almost invariably there are also other foods. Evidently these other foods may make a corn ration adequate. Again, while a diet too largely of corn is almost certain to be faulty, we do not know that this is also true of rye: or, again, corn supplemented by beans may still be a faulty diet, while rye so supplemented may be entirely adequate. Why the Russians did not have pellagra, though without milk, I do not know. Doubtless, however, their diet, even without milk, was a satisfactory one, so far as pellagra is concerned, at least.

There may be several ways of correcting the pellagra-producing fault. What we have presented this afternoon has simply emphasized the fact that so far as regards the diet associated with pellagra in this country, the addition of the group of foods represented by meat, eggs, and particularly milk, will correct the fault in this diet and prevent pellagra.

With respect to "war edema," I have a rather strong suspicion that cases of that condition occur in this country. I recently saw pellagra in a child in which there was marked edema of the feet. Cases of this sort are, I suspect, passed over as nephritis.

In this country pellagra is a very common occurrence in children of over 1½ or 2 years. The deprivation period, no doubt, varies, among other things, with the degree of deprivation; it may possibly be a matter of years, or it may not exceed four or five months.

Dr. R. G. Hoskins, Chicago: This, perhaps, should be mentioned in regard to Dr. Murlin's figures: In some of the inspections that have been made lately, there is some indication of the mess sergeants inherently meeting the situation by cutting down on the high caloric foods, etc. In regard to Dr. Hess' comments on desiccated vegetables, etc., and with reference to the experiments made on guinea-pigs, the guinea-pig has never acquired the drink habit.

Dr. Alfred F. Hess, New York: About the vegetables which we used, I may add that they were not given in the dry state. Guinea-pigs will not take dry vegetables. They were of three different kinds; from a well-known laboratory in this city; bought in the open market, which you may call commercial dehydrated vegetables; and a third lot dehydrated last summer, in an amateur way. The first lot were 2 weeks old; the commercial variety of indefinite age, and the third lot 6 or 7 months old. They were not given in the dry state, but as much water was added as could be absorbed. In two instances, where I had the opportunity, I gave dehydrated vegetables to infants suffering from scurvy. They were carrots of the very best kind, excellently flavored, and of good appearance. They did absolutely no good. I followed them by fresh vegetables, with a prompt amelioration of the symptoms.

Dr. Paul Roth, Battle Creek, Mich.: We may assume that two or three months was not sufficient to determine what might happen on a prolonged dictation of diet. That is true. We made it four months, and then we admit the fact that we do not know what might happen in the course of two years, or centuries even, about this civilian war ration; but that we know, at least, what happened in that length of time, possibly.

THE RELATIVE VALUES OF THE PRINCIPLES OF EXTENSION, SUSPENSION AND MOBILITY

EXEMPLIFIED IN BOTH CIVIL AND WAR PRACTICE BY THE HODGEN WIRE CRADLE EXTENSION SUSPENSION SPLINT *

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Until recently, no very material advancement had been made in the methods of treating fractures of the long bones. It seems to be a subject to which little surgical thought has been given; the practice has been largely empiric. In this field, as distinct from other surgical fields, no very marked improvements have been made. Without particular reasoning, the law of precedent and custom has been followed religiously. Judgments from damage suits have, in this way, quite possibly been avoided to some extent; but the real occasion for them has not been disposed of, for we have often been far from doing as well by the patient as we might. Our texts have handed down the methods of the fathers, without a clear appreciation of the basic principles involved in the treatment. Only one

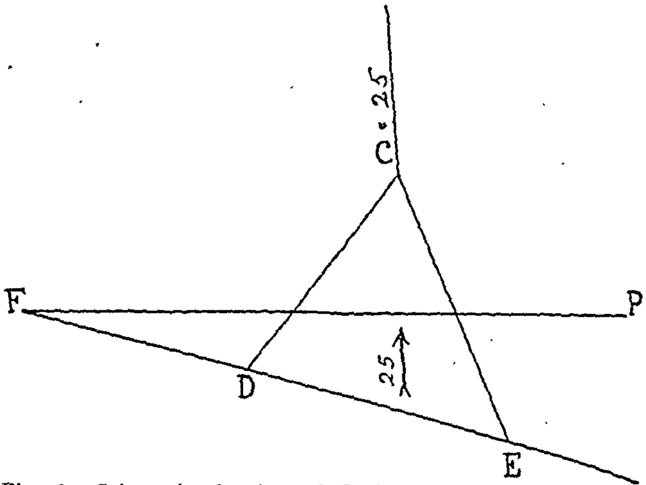

Fig. 1.—Schematic drawing of Hodgen splint vertical suspension. *FP* represents the limb; *F*, foot; *P*, pelvis; *EE* represents the splint; *C*, suspending cord, suspending vertically; *CD* and *CE*, cords suspending the splint. The vertical lift is 25 pounds, distributed evenly along the limb. This is the suspension force. There is no extension.

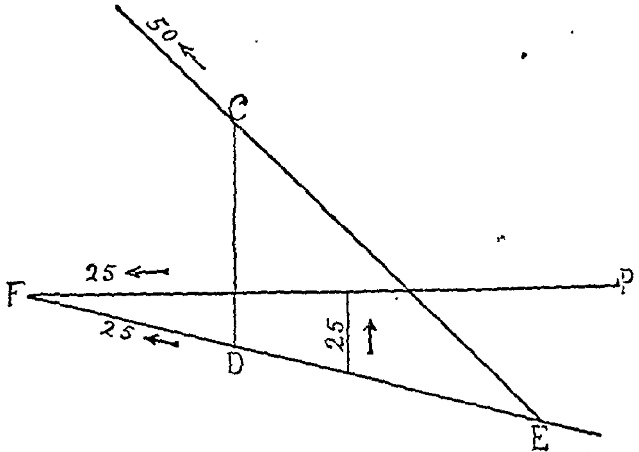

Fig. 2.—Schematic drawing of Hodgen splint extension and suspension. *FP* represents the limb; *F*, foot; *P*, pelvis; *FE* represents the splint; *C*, the suspending and extending cord; *CD* and *CE*, cords suspending the splint. A pull of 50 pounds at *C* still makes a suspension of 25 pounds and an extension at *F*, the foot, transmitted to the limb of 25 pounds. *FP* is the resultant force.

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* Read before the Section on Surgery, General and Abdominal, at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

clear idea is maintained throughout all texts, and that is the idea of fixation or immobility of the site of the fracture. To attain this idea, other principles of equal or of greater importance have often been sacrificed. To secure complete fixation and immobility, skin, muscle, nerve and vessel, as well as the patient as a whole, have frequently been overlooked, ignored or forgotten. Cumbersome appliances have been used that may well merit the name of instruments of torture.

More recently, however, the subject of fractures has had thoughtful attention, and great advancement in treatment methods is shown both in the operative procedures and in the external appliances now being used in war work.

When considering the proper appliances for treating fractures, it is well to note the several principles involved in the more rational kind of fracture treatment. More definitely, we may say that it is necessary to apply these several principles to the femur, since the femur is the strongest long bone, with the heaviest musculature. These principles are just as applicable to the humerus and other bones of the extremities, except that the application of them is modified by slightly different anatomic conditions and certain differences in function.

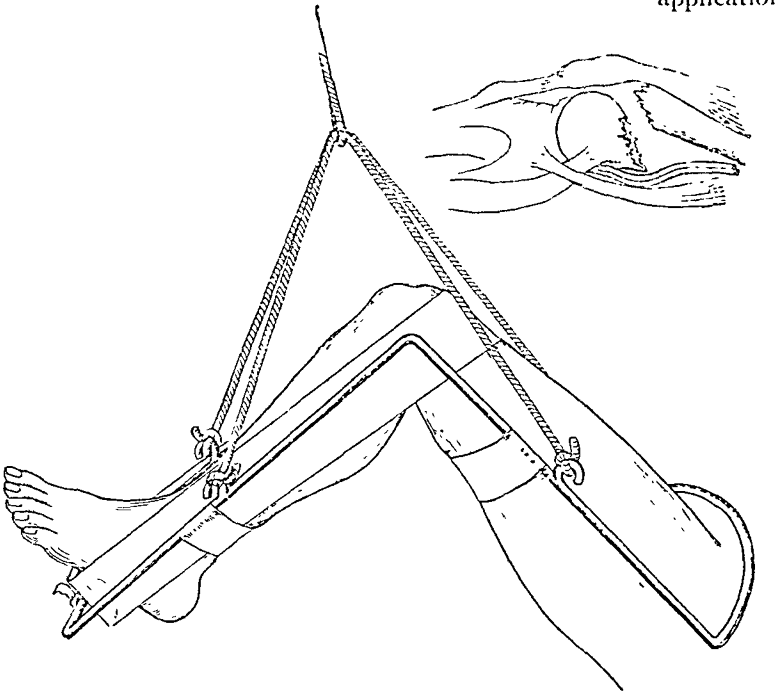
Fig. 3.—Proper application of a Hodgen splint for a supracondylar fracture of the femur. The splint is bent at an angle of 45 degrees. The adhesive straps of the Buck extension overlap above the knee. This position relaxes the muscles of the calf, pulls down the extension muscles of the thigh, and lets the ends appose. See inset above.

First, then, is the well-known principle of fixation. The value of fixation is, of course, unquestioned, for the site of fracture must, of necessity, be immobilized. But just because fixation is so absolutely essential, its value has often overshadowed other principles equally important for complete functional recovery. In fractures of the long bones, the femur particularly, the principle of extension is of no less importance than is immobilizing the site of fracture. In the femur, a long, heavy bone that usually fractures obliquely, with powerful muscles to shorten and displace the ends, a fracture will produce deplorable deformity and loss of function as an end-result, no matter how immobile the seat of fracture may be. Extension, therefore, is of prime importance, and for fractured femurs is more essential than for any other long bone. The application of extension by Buck's plaster, by Steinman's transfixion pin, or by whatever method used, is really made through the great fascia lata. The stretching of this fascia attached to the hip and knee, with intermuscular septums attached to the bone shaft, makes all soft parts, and the bone also, return to their proper positions. In the judgment of the British Fracture Committee, good form is almost synonymous with good function; and no other principle of treatment produces good form so well as the application of extension.

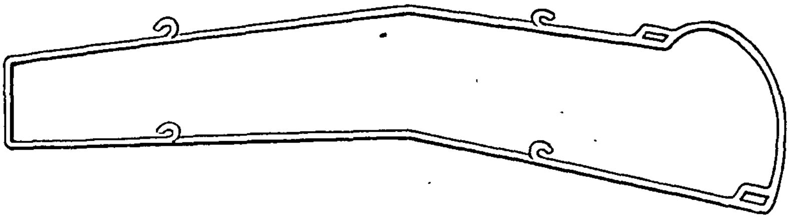
Fig. 4.—A modification of the Hodgen splint suitable for transport service. Inner arm is 40 inches long; outer arm is 46 inches long; lower end is 6 inches wide; upper end is 12 inches wide; openings at the upper end for a strap or padded cord.

Extension, of course, implies counterextension. Intelligent extension is made always with reference to the muscle pulls of the several groups which may not only produce longitudinal shortening but displacement outward, forward, inward or backward. A knowledge of mechanics, muscle attachments and roentgen-ray examinations are all very helpful in guiding the direction of extension and counterextension forces.

Suspension and mobility are important factors in fracture of the femur. The mobility of the patient, especially the aged, is a principle of treatment that must be considered seriously. Moving about in bed, sitting up, and having the comfort and nursing care made easy, make chances for recovery much greater. This mobility is obtained in suspended splints, because the ball and socket hip joint, with its

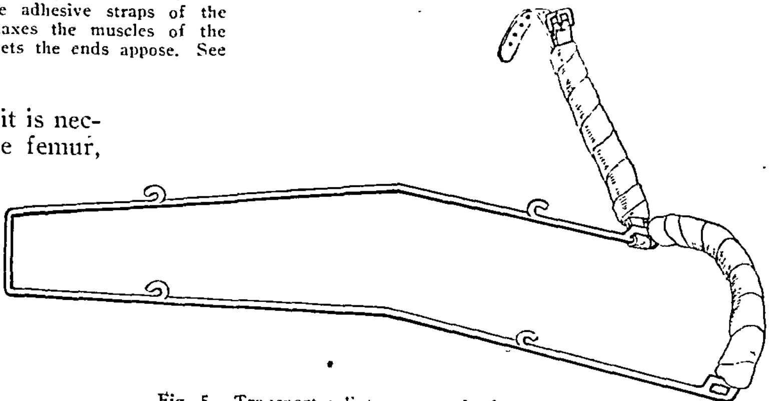
Fig. 5.—Transport splint open ready for application.

wide radius of motion, allows a great latitude of movement of both the limb and the patient, without any danger of moving the fracture site, if the proper extension and immobilizing splint is applied. The principle of suspension is of great value when treating compound fractures and war wounds. It makes for easy examination and dressings, and facilitates roentgen-ray examinations and irrigations of the wounds, all of which are of cardinal importance. The suspension makes possible also the free movement of both the leg and the patient, thereby contributing to his comfort and to ultimate good functioning.

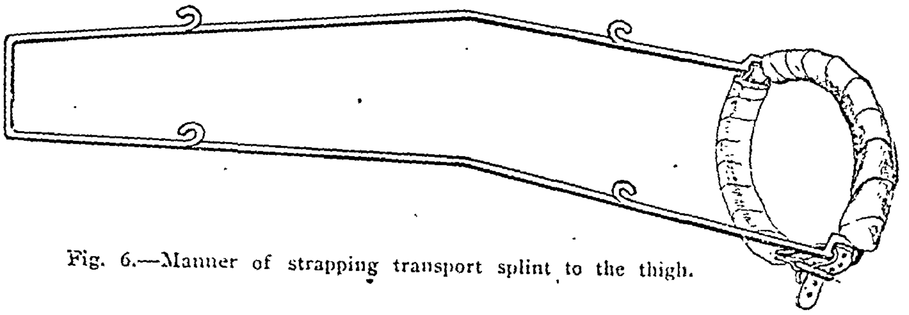
Fig. 6.—Manner of strapping transport splint to the thigh.

Another important principle of treatment which is frequently forgotten or ignored is that of flexion of the limb in a position of physiologic rest. The position that is most restful is slight flexion. Hyperflexion and hyperextension produce muscle strain and much pain, with later results of a paralyzed muscle.

Too often a splint is applied with the hamstring muscle stretched and painful. Stretch the hamstring muscle by hyperextension, and observe how quickly it becomes painful. We are born flexed, and uniformly assume flexed positions when at rest. It is a great mistake to ignore this fact when using splints.

In fractures of the femur there is more or less damage done to the soft parts; and in war particularly the wounds are of the first importance. Any appliance that ignores the treatment and care of muscle and soft parts is faulty; and when fractures are compound and infected, such appliances are impossible. Massage and care of the skin and circulation are very important, even in simple fractures. An appliance that permits open treatment of a compound fracture is, of course, absolutely essential. The wire cradle, open type of splint has so far met this requirement most successfully.

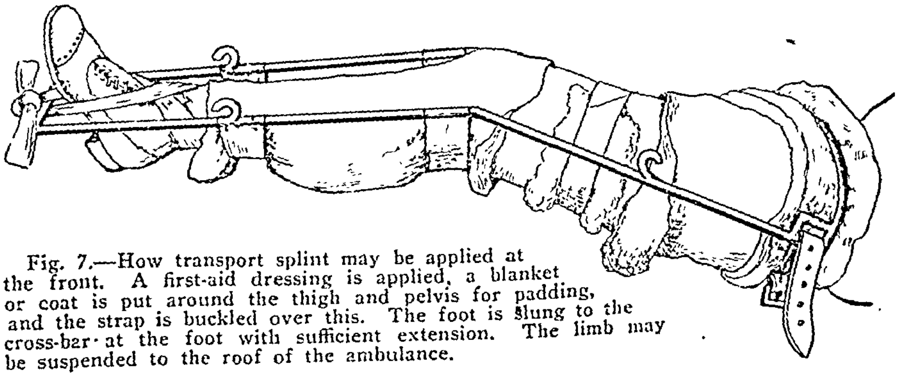
Fig. 7.—How transport splint may be applied at the front. A first-aid dressing is applied, a blanket or coat is put around the thigh and pelvis for padding, and the strap is buckled over this. The foot is slung to the cross-bar at the foot with sufficient extension. The limb may be suspended to the roof of the ambulance.

These several principles mentioned are of relatively varying importance, it will be realized, according as to whether the patient is old or young, the fracture simple or compound, and according to other varying conditions. Fixation and extension should always be secured if possible, and flexion should not be ignored. Open treatment, suspension and mobility are of such importance in many cases as to be absolutely essential. In the aged, in compound fractures, and in war wounds, these principles applied are of inestimable value.

Now, manifestly that appliance is the most valuable and efficient which incorporates the most of these several more or less essential principles of treatment.

In reviewing the several splints and appliances used for treating fractured femurs, one will see that, in proportion to the efficiency of the treatment, one or more of these principles of treatment have been fulfilled. Often only fixation has been used with coaptation splints of board or plaster; plaster of Paris with extension at the time of "setting"; coaptation splints with extension applied, such as Buck's extension; also the old Liston side splint with perineal counterextension; Hamilton's side splint, with weight and pulley extension; Nathan R. Smith's wire splint for suspension, and the wire cradle types of splint, with separate suspension and extension. After study, one will invariably conclude that the wire cradle type of splint embodies more of the essential principles of treatment than any other type. We shall readily see that it can be made to meet the indications of treatment of almost any condition. We shall see that this type is peculiarly a war splint, as is proved by its extensive use at present. The Thomas splint appears to be the most popular one in use just now.

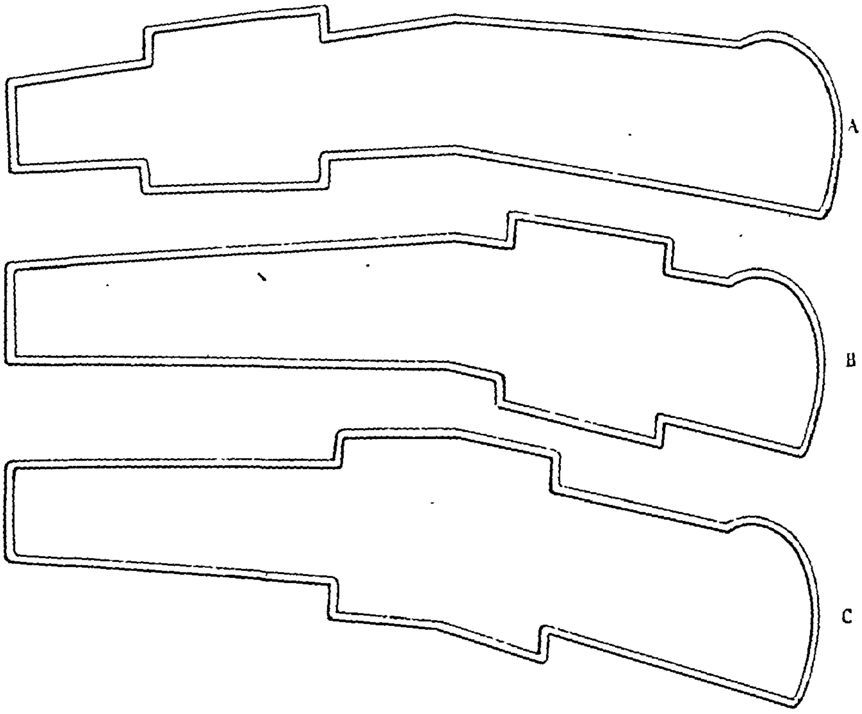

Fig. 8.—Model of modified Hodgen splints spread at the leg (*A*), thigh (*B*), or knee (*C*) to make more room for dressing compound fractures.

It was the genius of a great surgeon of the west, John T. Hodgen, which during our Civil War produced the splint that bears his name. Now that the several most essential principles of fracture treatment are beginning to be recognized, may we not hope that this splint, which compasses all these principles, will come to perform its true and legitimate function? It is a most perfect wire cradle type of splint, and is, therefore, peculiarly applicable for war service. Extension and counterextension, applied in any requisite amount and with the simplest elementary forces, are secured better than with any other splint yet devised. The inclination of the suspending cord will give any desired amount of extension. Counterextension is secured by gravity, simply by raising the foot of the bed a sufficient amount. Perineal and ischial pressure is avoided. Intra-extension is obtained, which is better than separate pulley and extension, as it leaves the mobility of the patient complete. The factors of mobility, suspension and physiologic flexion are all secured most perfectly. Nearly all modifications of the Hodgen splint have marred, rather than bettered it; but it may be modified in many ways to meet the varying indications for treatment. Such modifications do not deserve separate names, for they are all, in principle, the Hodgen splint. Any degree of flexion at the knee may be secured. The frame may be widened at any place to give more room for treating wounds. Suspension without extension or suspension with any degree of extension may be measured by the inclination of the suspending cord. Intra-extension within the splint from the knee may be secured by a Buck's extension or a Steinman's pin, still preserving all the free mobility from the hip. For a transport splint, it may be easily modified by using a padded strap threaded through slots prepared at the upper end of the splint, with the spreading arch to complete the circle around the hip. Extension may be made as usual to the cross bar at the bottom of the splint by a clove hitch to the foot or by a Buck's plaster extension. The splint may be suspended to the roof of the ambulance and will add much comfort in transport.

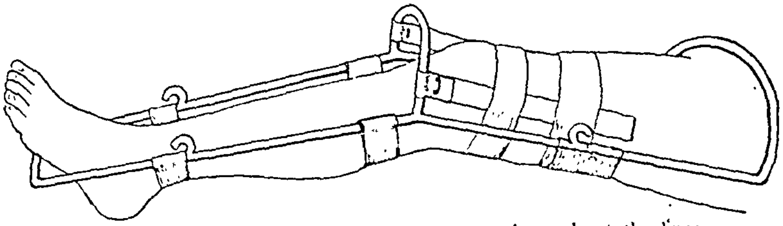
Fig. 9.—How extension by adhesive straps may be made at the knee.

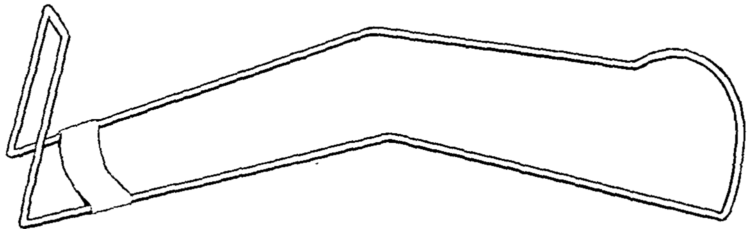
Fig. 10.—Modification with greater offset at the front for either adhesive or clamp extension from the knee. This splint should be of somewhat heavier iron than is necessary without the offset.

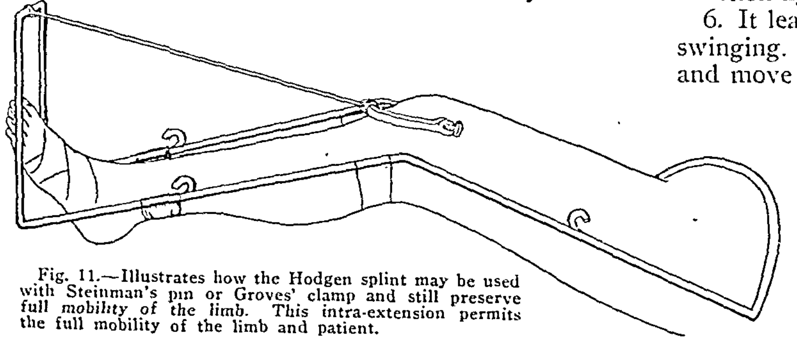
Fig. 11.—Illustrates how the Hodgen splint may be used with Steinman's pin or Groves' clamp and still preserve full mobility of the limb. This intra-extension permits the full mobility of the limb and patient.

DISTINCTIVE VALUES OF THE HODGEN SPLINT

1. It immobilizes the site of the fracture most satisfactorily.

2. It gives any requisite degree of extension, with gravity counterextension. Extension is easily measured and controlled. Counterextension is not painful or injurious to the perineum and soft parts.

3. Abduction and adduction, with all the varying positions needed to secure bone apposition, are readily maintained.

4. Extension is within the splint (intra-extension), leaving the entire limb and apparatus mobile and free.

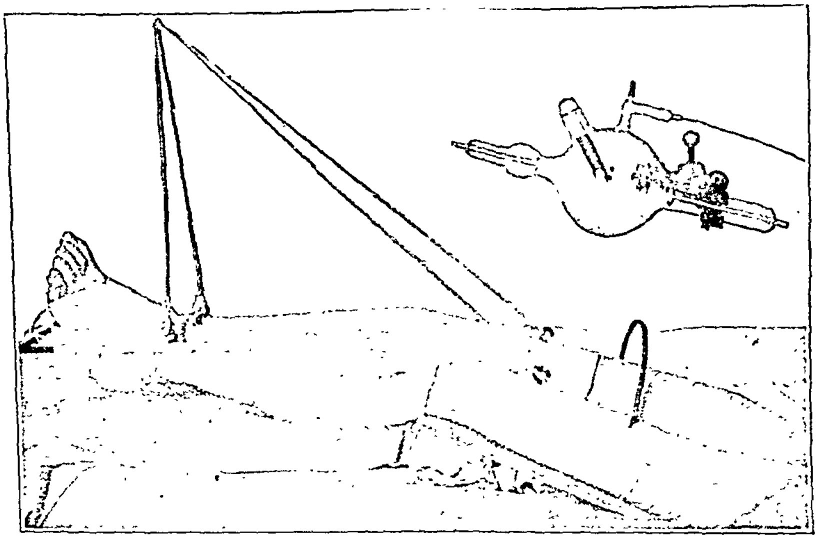
Fig. 12.—Roentgen-ray tube and plate. The ease with which roentgen-ray examinations are made is obvious.

5. Physiologic flexion is secured, thereby preventing hyperextension and muscle strain, with consequent bad functioning, and perhaps a paralysis.

6. It leaves the patient freely mobile, with the thigh swinging. It makes it possible for the patient to sit up and move about in bed, and therefore promotes comfort and good recovery.

7. An open wire cradle splint allows massage, inspection and the good care of the soft parts, which are great factors in getting functional recovery.

8. It is a splint easily modified to meet the indications for treatment of any fracture from the pelvis to the foot.

9. A modification is devised for transport service which is not yet excelled.

ABSTRACT OF DISCUSSION

Dr. H. D. Wood, Fayetteville, Ark.: One of the difficulties I had in making the Hodgen splint was in getting material to suspend the limb. At last I came to use a bath towel. This open weave material does not stretch. It makes the best suspension for the limb that I have found. Years ago I brought out a splint for the treatment of the humerus. These splints can be used for any sort of case, and they will enable you to do the best work on compound fractures. They have been called orthopedic straight side apparatus. It is time to give the splint another and better name, say orthomelic appliances, straight limb appliances. The patients can be transported easier with these appliances on them than any other way.

Dr. Daniel N. Eisendrath, Chicago: We must distinguish between the treatment of fractures in civil practice and in war practice. In civil practice the skin is usually intact; in war extensive destruction of the skin and soft parts and frequently comminuted fracture occurs. I am speaking especially of fractures of the femur. Nine men out of ten who are treating fractures in civil practice are treating them with the old method of Hamilton, long external splint with Buck's extension, or Buck's extension with plaster cast. It is folly to put on a plaster cast with extension. The majority of men are treating fractures of the femur in the horizontal position, perhaps elevating the foot of the bed to attain supposed counterextension. The Hodgen splint teaches us that you can put the fracture fragments into line. You do not get them into line if they are in the horizontal position on account of the pull of the muscles. The only modification of the inclined plane is in the lower third of the femur, where it is criminal to apply the old method of horizontal extension or even ordinary oblique extension, because the pull of the gastrocnemius and soleus pulls the lower fragment back so that you cannot get apposition. If you want the fragments in position you must put them up on a double inclined plane, otherwise you get the very serious sequel of pressure on the vessels or union in a bad position. I have never had quite the faith in the Hodgen splint, so far as extension is concerned. In my opinion no splint can make extension directly on the point of fracture. I believe you must make extension on the muscles and tissues around the seat of fracture. The roentgen ray has taught us that we must make extension on the envelop of tissues around the fracture. That contracts immediately, beginning after the fracture, and the contracture pulls the fragments apart. Unless you can keep up extension and pull long enough to tire the muscles and counteract the soft part contraction, the fragments are bound to slide past each other. In war we are obliged to adopt another principle, namely, extension on the long end of the femur. Here the Steinmann pin, the Besley bone peg, have served usefully because we cannot apply the Buck's extension. The majority of men in putting on the Buck's extension forget the comfort of the patient. They do not face the inside of the Buck's extension with something that will not come into contact with the ankle. And the majority of surgeons do not put the adhesive plaster on in such a way as to make direct extension on the soft tissues around the fracture. If you want to put it on properly you must put it on as high as the upper third of the thigh.

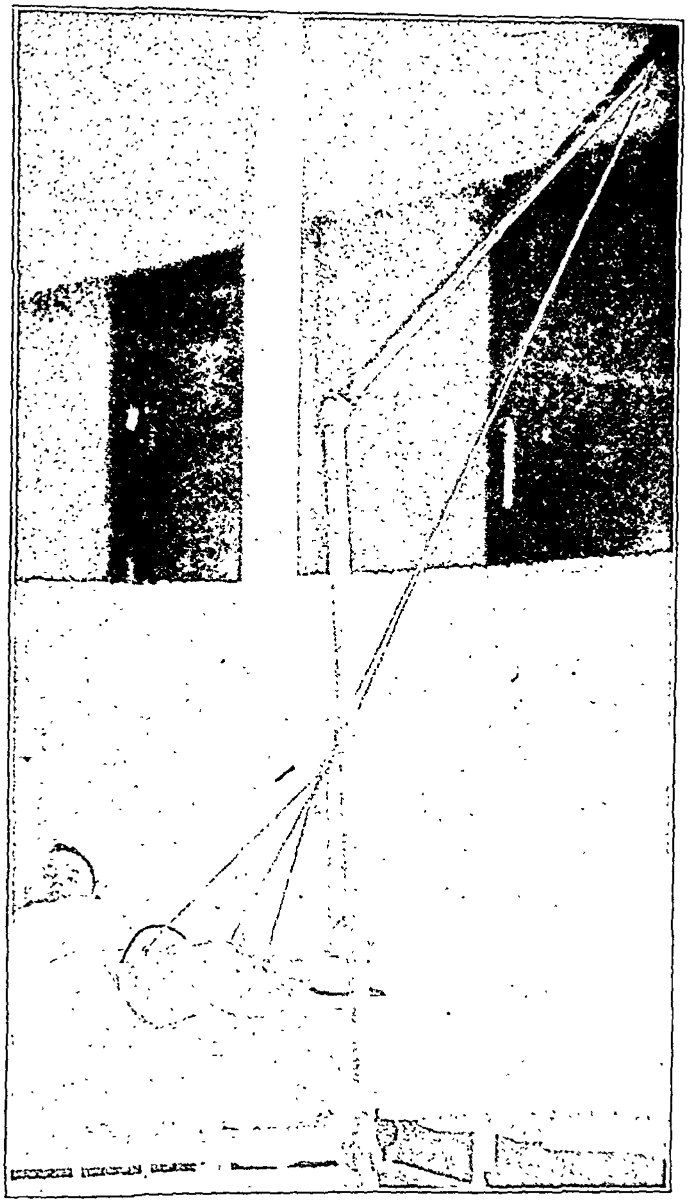

Fig. 13.—Use of the bed standard for suspension, extension and abduction. The abduction is made by the length of the inclining arm.

Dr. F. L. Reder, St. Louis: The chapter on fractures of the femur will require the consideration of men in the practice of surgery for all time to come, because of the manifold diversity in exercising common sense in the treatment of these conditions. Has it occurred to you why this is so? If we revert a bit into history, we find that in 1819 Daniell of Savannah, Ga., applied the weight and pulley to obtain permanent extension. It was Vaningen of Schenectady, N. Y. who in 1855 elevated the foot of the bed to obtain counterextension, while to Sargent of Philadelphia is accredited the application of adhesive straps to the leg to obtain adequate support for extension. Dr. Sargent was good enough to say, however, that he derived the idea from Wallace of Philadelphia. These were really the first steps of progress in the successful treatment of fractures of the thigh. They are mentioned to emphasize the value of the little things in connection with the treatment of this fracture. There have been three epochs in the history of the treatment of fractures of the femur. The first started with the earliest periods when fractures were treated and embraced the straight position. The second was instituted by Percival Pott, the distinguished English surgeon, during the eighteenth century, and held sway for nearly 100 years. This treatment was conducted on what Pott called his "physiologic doctrine," consisting in holding the leg in a flexed position, the patient being placed on his side. The doctrine was accepted in Great Britain, in France and on the continent generally. Dupuytren's decision as to the merits of this doctrine was instrumental in popularizing the method in France. Later, modifications began to show themselves, and instead of the patient lying on his side, he was placed on his back. The limb was supported on a double inclined plane. In this country this method of treating fractures of the thigh did not find much favor; the practice of Pott did not become popular. The third epoch, and it is the present epoch, is the one in which the treatment consists in again carrying the limb in the straight position. When Dr. Hodgen contrived his splint he had in mind the one problem, the influence of position on muscle relaxation. He reasoned that extension must be made in manner least likely to excite muscular contraction, i. e., in a direction that will not come in conflict with a position of the limb calculated to favor muscle relaxation. The outcome of this reasoning was the suspension splint so graphically described by the essayist.

Dr. C. W. More, Eveleth, Minn.: I want to endorse the essayist's recommendation of the Hodgen splint in every particular. I have used the Hodgen splint in over 2,000 fractures of the lower extremities. I have tried to get away from it by using other methods, but have always gone back to the Hodgen. It gives the best results, allows inspection and dressing of the fracture without disturbance, is comfortable for the patient, allows the patient to move about in bed, and adjustment of the bed pan is a simple and easy matter. Its use is limited only by the ability of the surgeon to take advantage of its possibilities; one with knowledge of anatomy and some mechanical ingenuity will obtain the best results. The Hodgen suspension is as useful in fractures of the long bones below the knee with displacement as with the fractured thigh. The more severe and complicated the fracture, the greater the indications for its use. Not only direct, but lateral and counterlateral extension can be obtained. My experiments gave me about 18 pounds direct extension with 45 pounds at the upper end of the pulley, which is a little less than that of the essayist. However, one can get all the extension necessary. The Hodgen can be made by any blacksmith.

Dr. E. M. Sanders, Nashville, Tenn.: I want to say a word for the old people in regard to this splint. Old people, 70, 75 and 80 years of age, can be treated more comfortably in this appliance than in any other, except the rolling chair. Occasionally nonunion occurs, but I put them back for another month, and usually union takes place in the second month. There are two or three little points to which objection is raised. As brought out in fracture of the lower third or fourth of the femur, deformity can be overcome by extreme flexion. Another objection is the heel pain. The patients complain of this pain more than any other pain in connection with the whole treatment of fracture after the first forty-eight hours. That pain can be relieved by padding the Achilles tendon with a big wad of cotton. Dr. Eisendrath has brought out the point of ankle prominence. We relieve this by a piece of tape. We have not used the Wallace pad or any other kind of complicated pad. We use the ordinary hospital pad.

Dr. Frank G. Nifong, Columbia, Mo.: The principle of treatment I wish to accent most is extension. The fascia lata is the most important structure to be considered when applying the principle of extension. Extension, whether made through the shaft of the bone by Steinmann's pin or by a Buck's plaster, is, nevertheless, made through the fascia lata and the intermuscular septums attached to the linea aspera. Direct bone extension by pin or caliper would displace the lower fragment forward or backward, as the pull happened to be in front or behind the fulcrum or knee joint, if it were not for the fascia lata and soft parts. It is always the pull through the fascia lata and muscles that reduces the limb to normal contour and position and lets the displaced ends of bone come back into apposition. Extension is the most essential principle to be developed in the Hodgen splint. The Hodgen splint has no friction to deal with, and we can closely approximate the amount of extension pull we are making. We need not measure this accurately in pounds, but we need only to know we are getting length and symmetrical contour. Frequent examinations with fluoroscope, so easily done in a suspended splint, will indicate if we need more or less extension, abduction and the amount of flexion necessary to secure perfect apposition of the bones. We do not have to "set" the bone in the classical way. We do not wish to set the bone. In a very short time it will set itself if extension and suspension are applied properly with a Hodgen splint. It may not be the first, second or even the third day, but it comes back in good time. By this continuous even smooth and not too violent pull, we gradually have muscle relaxation and apposition of the bones with all the soft parts coming back into normal contour. Too much extension puts the muscles in a spastic condition, and will not act as quickly as a lighter weight. Not over 10 or 15 pounds is sufficient, as a rule. Of course, the principles of suspension and open treatment are of great importance in war work. That is the reason for the popularity of the wire cradle type of splint at present.

The Hodgen splint is of exceptional value in treating fractures in the aged. It is with these old people that the principle of mobility counts for so much. Mobilizing them is next to getting them "up and out." To keep the old going and their functions all active is the most important principle in geriatrics. The Hodgen splint is of peculiar value not only in the aged, but in every case, because it permits the consideration of the patient as a whole. It considers his nerves, his vessels, his muscles, his skin and all his functioning organs. It permits the patient to be treated as a psychologic entity, and cares for him as a feeling human being.

Do not forget the importance of the splint being open, allowing for inspection, massage, measurements, etc. We see contour and symmetry of the limb and can compare it with the other at all times. Good contour is almost synonymous with good results. Ninety per cent., at least, are good results, according to the British Fracture Committee.

MUCODERMOID CYST OF THE PERICARDIUM *

JUAN BACIGALUPO, M.D.
BUENOS AIRES, ARGENTINA

Pericardial tumors occur rarely. In 5,700 necropsies made since 1906, we found them only twice. They are all secondary tumors. We have more frequently found tuberculous granulomas in miliary tuberculosis, although it is one of the less frequent localizations. Parasites, hydatidiform cysts, cysticerci, etc., have also been described.

This case is one of congenital cyst of the pericardium, and is the first, I believe, to be described.

Intrathoracic congenital tumors, though rare, have been found. Nandrot,[1] in a review of the literature of dermoid and mucoid cysts of the anterior mediastinum, did not find a single case that can be compared with our case. A case observed by Nandrot was the fifty-seventh case recorded. In none of them did the tumor reach the pericardial cavity, and in only a few cases was the tumor adherent to the parietal layer of the pericardium. In one case a dermoid cyst was firmly adherent to the pericardium, the large blood vessels, and to the trachea. This tumor was the size of a fist.

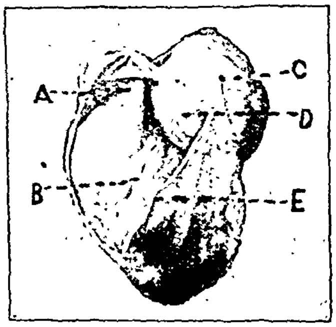

Fig. 1.—The heart: *A*, origin of pulmonary artery; *B*, anterior ventricular wall; *C*, phrenic nerve; *D*, tumor; *E*, parietal pericardium.

Pathology of Tumor.—On removal of the sternum a small elevation of the pericardial region was perceptible. When the pericardium was opened a tumor was observed in the region of the left auricle (Fig. 1 *A*). The phrenic nerve was visible on the anterior surface of the pericardium overlying the tumor.

When the pericardium was opened we found only slight adhesions at the level of the anterior pole of the tumor. After the pericardium was removed we proceeded to study the localization of the tumor and its connection with the heart, endeavoring at the same time to ascertain the modifications of the anatomic configuration of the heart.

The tumor was situated in the place usually occupied by the left auricle, causing a protuberance in front of the large vessels.

When the tumor was removed from its bed, the pulmonary artery (Fig. 2, 1), the left auricle (4), a part of the right auricle, the aorta, the base of the left ventricle, with the corresponding coronary artery were flattened to form the bed of the tumor.

The dissection was not difficult, because there were no adhesions between these structures and the tumor,

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* From the Laboratory of Bacteriology and the Anatomo-Pathologic Institute of the Hospital de Niños.

1. Nandrot: Contribution à l'étude des kistes dermoides du médiastin anterieur, thèse de Paris; 1917.

The treatment consisted in the administration of maximum doses of the diarsenol brand of arsphenamin followed by large doses of potassium iodid; but no improvement was noted. Subsequently extensive incisions were made, the first and second toes amputated, and thorough curettement done in all the sinuses and incisions. After the surgical treatment the wounds were dressed with antiseptics, and the patient made an uninterrupted recovery, and was discharged from the hospital.

REPORT OF A CASE OF PRIMARY TUBERCULOSIS OF FAUCIAL TONSILS

T. E. Oertel, M.D. (Augusta, Ga.), and George A. Griot, M.D. (St. Louis)
Major and Captain, Respectively, M. R. C., U. S. Army
CAMP LOGAN, HOUSTON, TEXAS

While tuberculosis is a very prevalent disease affecting practically all the tissues of the human body, being especially frequent in the glandular system, it is less often or seldom found as a primary infection of the faucial tonsils.

The following case occurred in the otolaryngologic service of the base hospital at Camp Logan, Texas.

REPORT OF CASE

History.—W. H. F., a well nourished and developed white male nurse of German nationality, aged 26, stated that two years before, for a period of six months, he had had charge of a tuberculous ward in a general hospital for soldiers, located in Wisconsin. The patients in his charge had principally advanced cases of pulmonary tuberculosis. He had been away from the hospital for one year. The family history was negative. In December, 1917, he had had an attack of tonsillitis of a type unknown to him, lasting about two weeks. He had not recovered completely from this attack, as a soreness had persisted in both tonsils, more pronounced in the left, until the time of consultation, March 7, 1918. Also he had noticed a swollen condition of the left tonsil which had persisted since the attack of tonsillitis in December, 1917. Four weeks previous to consultation, he had complained of hoarseness which would last for a few days, then subside for a day or two, and again recur. For the previous two weeks hoarseness had been constant, growing progressively worse. Eating sour fruits, such as lemons or grapefruit, caused irritation of the throat, but did not cause coughing.

Physical Examination.—The general appearance of the patient was that of a normal, healthy man. His appetite was good. He had had no night sweats and no loss of weight, and he slept well. He coughed very little, expectorating a yellowish material when clearing his throat, about two or three times an hour during the day. He did not cough up any pulmonary secretion. The skin was normal.

In the ears, both conchae were normal. The right canal was negative. In the left a small amount of mucopurulent material was found. The right membrana tympani was covered with a whitish and opaque deposit. The light reflex was absent. The left revealed the same condition as the right, except that it had a small perforation in the posterior inferior quadrant. The discharge had existed for fifteen years, dating from an attack of measles.

Examination of the gastro-intestinal system revealed the fact that the mouth was normal in contour and color, and the tongue, esophagus, stomach, liver and intestine negative.

Examination of the respiratory system beginning with the nose showed that the septum had deviated to the right and that the left inferior turbinate was hypertrophied. The nasopharynx and the sinuses were normal. A general anemia of the larynx was found.

The epiglottis was very much enlarged, about half an inch in thickness, and presented a large eroded area on the left side. It was anemic and covered with granular masses, the size of small birdshot, yellowish and semitranslucent. A mucopurulent secretion was noted, covering both the epiglottis and the structures of the larynx. The arytenoid cartilages were very much enlarged. The left was much larger than the right, having a distended appearance as though it were filled with air. The left vocal cord was swollen, with a large ulcerated area near the middle and much elevation along the edge. The right cord was not much thickened and presented a small, ulcerated area where it approximated the ulcer of the left cord. The trachea presented a thickening of ring immediately below the left vocal cord. In the right lung, fine râles were audible in the suprascapular space after cough. In this region, over an area the size of a dollar, vocal and tactile fremitus was slightly increased. The left lung was negative.

The right tonsil was the size of a small hickorynut; the posterior third presented an ulcerous excavation, bandlike in form, with the surface roughened and studded with numerous little, yellowish, elevated nodules, the size of a mustard seed shot and extending from the upper to the lower pole, taking in the posterior third from the apex of the pillars to the base of the tonsils. This ulcerative process had eroded the parenchyma almost to the capsule. A small remnant of the parenchyma remained on the posterior pillar. The pillars showed no departure from the normal.

The left tonsil presented an ulcerated area triangular in form, covering the anterior two thirds of the tonsil below and leaving a small portion of tonsillar tissue posteriorly unaffected. The depth of the ulcer and its appearance were similar to those already described in the right tonsil, with this difference, that considerably more tonsil tissue was destroyed. Perhaps this would indicate that the infection had existed primarily in the left tonsil. The cervical glands were palpable on both sides and slightly enlarged. The submaxillary, axillary and inguinal glands were negative. The temperature ranged from normal to 99.2 F.

Both tonsils were removed, March 9, 1918, under general anesthetic by dissection and snare. There was very little hemorrhage, and the fossae presented a smooth appearance.

Laboratory Report (by Captain Stone).—The right tonsil was 1.5 by 2 by 0.8 cm. thick. It was irregular in outline. The capsule showed an uneven surface. The inner surface of the tonsil appeared uneven and granular, and of a mottled dark red, with points 1 mm. in size and almost white. The mucous membrane was apparently entirely eroded. The left tonsil resembled the right, but was not quite so thick. In the microscopic examination, tubercle bacilli were found in mucus recovered from the larynx.

The patient was sent to a tuberculosis sanatorium, March 12, 1918.

PRESERVATION OF COMPLEMENT

Meyer D. Moledezky, B.Sc., M.D., Chicago

A somewhat extensive series of articles have appeared relative to the preservation of complement, and many ingeniously worked out methods have been advocated. It is not the intention now to discuss the merits or demerits of other methods but to offer a method, simple, inexpensive and reliable, which I have used.

I have found that complement from freshly bled guinea-pig blood, centrifuged, is not so powerful as that which stands over night in the refrigerator and is permitted to separate from the slowly contracting clot. This has repeatedly been observed and corroborated in an extensive series of experiments covering a long period of time, by titrating the same complement shortly after obtaining the blood, and likewise the following morning, using the same amboceptor and sheep corpuscles.

For the preservation of complement, the worker needs a vacuum bottle into which finely cracked ice is dropped until the bottle is filled almost to the neck, and then covered with a small amount of ordinary bath or sea salt. The complement, pipetted into a test tube and corked, is now pressed into the bottle. A piece of string, tied to the tube just below the lip margin, is permitted to hang out of the vacuum bottle when corked, enabling ready access to the tube; the bottle is then placed in the refrigerator. In a short time the complement becomes frozen solid, and in this condition it retains its strength indefinitely, thus serving as a miniature refrigerating plant. It is necessary to remove the tube and empty the water from the bottle, replenishing the ice and salt at least every forty-eight hours—preferably daily. In order to use the complement, the water from the vacuum bottle may be poured into a beaker or other receptacle and the frozen complement tube set into it to thaw. If the entire amount is not used, the balance may be treated as before and the complement in this manner may be preserved until the last drop is used. The preliminary titration of amboceptor, corpuscles and complement each time used should not be abolished because of the foregoing, as the former two may and do vary, even though complement does not. Caution is to be exercised in filling the vacuum bottle, not to pack the ice into it. The ice is to be dropped in gently, as otherwise it becomes too compact, and when the tube is inserted it may break the bottle; or the tube fits into a clumped ice pack which, instead of hugging the tube, because of salt and the fine ice particles keeping it frozen, forms a pocket into which the tube rests freely, and prevents freezing by liquefaction of the ice in immediate contact with it.

25 East Washington Street.

Military Medicine and Surgery

MIXED INFECTION (MENINGOCOCCUS AND PNEUMOCOCCUS) MENINGITIS

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Major, R. A. M. C.; Associate Professor of Hygiene, and Director, Connaught and Antitoxin Laboratories, University of Toronto; in Charge of No. 39 Mobile Laboratory.
B. E. F., FRANCE

There have recently appeared three communications dealing with the subject of meningococcus and pneumococcus infection of the meninges in persons in which the primary infecting micro-organism was the meningococcus. The first two, by Netter and Salanier,[1] placed on record a series of cases observed in children. Mathers[2] has also described a case which he observed in an infant. The relative frequency of this condition is not as yet precisely determined, though it is believed to occur in about 5 per cent. of cases.[3] That it may occur more commonly than is at present supposed is possible, judging from recent work. In a series of twelve cases of meningitis (cerebrospinal fever) the pneumococcus as well as the meningococcus was found in three cases.

From such a limited number of cases it is impossible to draw any conclusions; but it is hoped that as a result of this publication it may be possible to direct the attention of other workers to the desirability of following the case of cerebrospinal meningitis in such a way that, if the pneumococcus appears in the cerebrospinal fluid during the course of the disease in a given patient, the fact may be duly recorded.

The study of cerebrospinal meningitis until very recently has often not been conducted with the idea of close correlation of clinical and laboratory observations. In this connection it is necessary to have in mind the fact that the laboratory examination of a few specimens of cerebrospinal fluid from a patient suffering from meningitis is not enough. Every sample of fluid withdrawn must be examined bacteriologically if we are to have exact information as to the number of persons with pure meningococcus meningitis who subsequently show the presence of pneumococcus in the cerebrospinal fluid.

The statistics as to the value of antimeningitis serum in the treatment of epidemic meningococcus meningitis are all more or less open to this objection, because it is highly probable, if not certain, that not all the observers who have reported the results in large series of cases (including Flexner, Dopter, Sophian, Netter and Debré) have had the results of the bacteriologic examination of every specimen of cerebrospinal fluid withdrawn in all the cases in the series which they have reported. Similarly, the work of the Meningitis Division of the Research Laboratory of the Health Department of New York City, which is probably the best example of civilian endeavor to control meningitis, is hampered because the study of the cases from beginning to end, clinically and bacteriologically as well, has not been possible.

In a given case of meningococcus meningitis, when the outcome is fatal, unless every sample of fluid withdrawn is examined bacteriologically, the result cannot be counted as a failure in serum treatment. The progress of the patient clinically must be correlated with the laboratory finding.

It is recognized that in many hospitals, both in America and on the other side of the Atlantic, just such carefully correlated clinical and bacteriologic studies have been made in cases of meningococcus meningitis. This is a special plea for similar work in all cases in which it is possible. The importance of cerebrospinal meningitis from a military standpoint has stimulated renewed interest in the subject, and the special means devised in several of the Allied countries for dealing with the problem have laid the foundation for future civilian efforts. In England under the auspices of the Medical Research Committee, and under the direction of Lieut.-Col. M. H. Gordon, C. M. G., and his co-workers, a very complete organization for this purpose has been established.

The cases herein recorded were seen in a military base hospital in Canada. In nine of the twelve cases the infection was due to the meningococcus alone, and in all of these cases the patients recovered. Of the other three cases, one was a doubtful case of mixed pneumococcus and meningococcus infection:

CASE 1.—C. A. complained of headache on a Friday afternoon; he became quite ill during the night, and the next morning was removed to the hospital. A lumbar puncture was done, as he now showed other symptoms of meningitis. The cerebrospinal fluid was turbid, and many smears by Gram's method showed the presence of gram-positive and gram-negative diplococci. Cultures of the fluid were made, but only the pneumococcus was recovered in culture. The patient rapidly grew worse and died the next evening.

In this case the diagnosis of mixed infection rests on the smears made of the first specimens of cerebrospinal fluid examined; the patient died so soon after admission to hospital that complete cultural studies were not possible. It may be argued that in this case we were dealing with a pure pneumococcus infection. Such is not the opinion of those who have had the opportunity of studying the smear preparations.

In the other two cases fortunately the laboratory findings were more complete:

CASE 2.—H. G. R., aged 26, complained of severe headache and general malaise, Jan. 28, 1918. He was admitted to the hospital and it was found that there was considerable retraction of the head and rigidity of the neck muscles. A lumbar puncture was done and 10 c.c. of turbid fluid under considerable pressure were withdrawn. The patient was at once transferred to the isolation section of the base hospital. Many pus cells and a few extracellular and intracellular gram-negative diplococci were found, from fluid withdrawn. Next morning the meningococcus was isolated in pure culture. Between January 30 and February 3, lumbar punctures were done every twelve hours and antimeningitis serum given intraspinally. During this time the patient's condition improved, and February 4, at 8 a. m., the temperature was normal for the first time since the patient's admission to the hospital. At that time his pulse was 80 and respiration 20. The examination of the spinal fluid withdrawn at 11:45 p. m., February 3, revealed a considerable number of pus cells, a few intracellular gram-negative diplococci, but no extracellular organisms. The next lumbar puncture was done at 11:45 a. m., February 4. The examination of the fluid withdrawn revealed the presence of many meningococci, and in addition, many gram-positive diplococci, which, when cultivated, were found to be pneumococci. At this time the patient's clinical condition was so satisfactory that only the laboratory findings warranted the bad prognosis which was given as soon as pneumococci were found in the cerebrospinal fluid. The patient became unconscious the next day, and gradually sank and died at 8 a. m., February 7, less than seventy-two hours after pneumococci were found for the first time in the cerebrospinal fluid.

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[1] Netter, A., and Salanier, M.: Bull, et mém. Soc. méd. d. Hôp. de Paris, June 28, 1917, p. 789; Arch de méd. d. enf., September, 1917, p. 449.

[2] Mathers, George: Mixed Infection with the Pneumococcus in Epidemic Meningitis, THE JOURNAL A. M. A., Nov. 24, 1917, p. 1778.

[3] Gordon, M. H.: Personal communication to the author.

In this case, after four or five doses of serum had been given, the patient's condition was so much improved, and the change in the character of the spinal fluid was such, that a favorable outcome was anticipated. It is a matter of further interest that the bacteriologic examination of the fluid afforded an indication of the probable fatal termination of the illness, some time before there was any marked change noted in the patient's general physical condition. The pneumococcus isolated in this case was a strain of Type I.

Case 3.—R. B., aged 18, first complained of frontal headache, Feb. 10, 1918. On the morning of February 11, he had nausea and vomiting and headache. He became drowsy and unable to walk. When he was examined, marked retraction of the head, rigidity of the neck, and Kernig's sign were noted. A lumbar puncture was done and 25 c.c. of turbid fluid under considerable pressure was withdrawn. Later the same day, a second puncture was done and 60 c.c. of fluid withdrawn, and 30 c.c. of antimeningitis serum administered intraspinally. The examination of the cerebrospinal fluid showed many pus cells, a few extracellular and many intracellular gram-negative diplococci. Between February 11 and 16, nine lumbar punctures were done, cerebrospinal fluid was withdrawn and antimeningitis serum administered after each withdrawal of fluid. February 16, the fluid was only slightly turbid, and while pus cells were quite numerous in the film preparations, no extracellular or intracellular meningococci were found. Coincident with the disappearance from the cerebrospinal fluid of all meningococci, there was marked improvement in the patient's condition. It was noted, February 16, that the patient was much improved; only slight headache was complained of, the temperature was 98.2, the pulse 80, and respirations 20, at 8 p. m. The fluid withdrawn at 11 p. m. on this date also showed no micro-organisms.

February 17, the patient's condition suddenly became very grave; there was marked delirium, the pulse was 120, the temperature 102, and respirations 20. A lumbar puncture was done, and 85 c.c. of very turbid fluid were withdrawn; the film preparations showed great numbers of gram-positive diplococci which on culture were found to be pneumococci Type II.

The patient gradually sank, and died at 12:15 a. m., February 18, less than forty-eight hours after pneumococci were found in the cerebrospinal fluid.

All the cases found in the literature have resulted fatally, with the exception of those reported by Netter and Salanier in which recovery of three patients is recorded.[4] The use of Type I antipneumococcus serum is certainly indicated when the organism producing the mixed infection is a strain of this type of pneumococcus.

CHRONIC ENDOCARDITIS WITHOUT ACUTE ONSET

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At no time have physicians had such a wonderful opportunity to examine thousands of supposedly healthy men as they are having today. Some of our ideas in regard to the relationship of certain infectious diseases to the development of chronic valvular heart disease have been abundantly confirmed, and other ideas have had to be modified.

We are having under observation in hospital men who, so far as they know, are well. Many times it falls to our lot to see the beginning of disease long before we should have seen it had the man waited for the development of symptoms before presenting himself to us for advice. In civilian life the latter is what happens, so that even our best textbooks detail symptoms that are not necessarily the very earliest, although they may be the earliest symptoms that made the patient consult a physician.

For years it has been taught that rheumatism and its associated diseases, chorea, tonsillitis, and growing pains in childhood, were responsible for most of the chronic deforming processes affecting the aortic and mitral valves in young persons. In men, disease of the aortic valves leading to aortic insufficiency was more common; in women, disease of the mitral valve leading to mitral stenosis was more common. Disease of the mitral valve leading to mitral insufficiency was about equally common in the two sexes. So far as I know, congenital syphilis has not been found to be a factor in producing aortic valve disease as acquired syphilis has.

The men who have been examined at the Recruit Depot, Jefferson Barracks, Mo., and on whom the statistics that follow are based, were for the most part men under 31 years old. About one fourth of the number were mere boys under 20. A few were as old as 39, but they were a very small percentage of the total number examined.

My attention was directed early in the work to the total absence of etiologic factors in cases of true mitral stenosis and of aortic insufficiency. Mitral stenosis is a lesion which is so definite that no mistake should be made in the diagnosis of the well marked cases. It has come to my attention, however, that many men have been given their discharge from the Army on account of supposed mitral stenosis. Careful reexamination of these both by myself and others has revealed absolutely normal hearts. Cases here reported as mitral stenosis were most carefully examined and no case was diagnosed as mitral stenosis which did not have definite presystolic thrill, presystolic rumble ending in a definite snappy first sound. The left ventricle in no case showed evidence of enlargement.

In spite of the most careful questioning there were instances in which there was no history obtainable of any infection that presumably could have accounted for the disease of the heart valves. Syphilis could be ruled out in all cases except in the few older men who actually gave a history of syphilis.

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[4] Netter, A., and Salanier, M.: Arch. de méd. d. enf., September, 1917, p. 449.

My statistics include the records of the examination of 43,427 men between the ages of 18 and 39. About 15,000 of these were examined by me personally during the routine examination of the men. The suspected cases were noted and held for further study. The cases among the rest of the 43,427 men were those referred to me that were picked out of the routine examinations and given more extended study. In this way I feel that we caught all the heart lesions occurring among this group of men. There were 24,002 drafted men and 19,425 volunteers.

HEART LESIONS

Condition	No. of Cases
Aortic insufficiency	22
Mitral stenosis	29
Mitral insufficiency with hypertrophy of left ventricle	19
Mitral insufficiency with no hypertrophy of left ventricle	87
Total (0.38 per cent.)	157

INFECTIOUS DISEASES

Acute articular rheumatism	62
Tonsillitis	10
Chorea	1
Growing pains	11
Diphtheria	1
Pneumonia and typhoid (when 3 years old)	1
Scarlet fever	4
Measles	2
Malaria	2
Smallpox	1

MITRAL STENOSIS, TWENTY-NINE CASES

Rheumatism	8
Tonsillitis	4
Chorea	1
Growing pains	5
Diphtheria	1
Pneumonia and typhoid	1
Scarlet fever	1
Total	21

In eight cases (27.5 per cent.) there was no history of any *infection*.

AORTIC *INSUFFICIENCY*, TWENTY-TWO CASES

Rheumatism	4
Syphilis	2
Tonsillitis	1
Measles	1
Smallpox	1
Scarlet fever	1
Total	10

In twelve cases (54.5 per cent.) there was no history of any infection. There was one basketball player, and there were several athletes, including one long distance runner. None had ever had symptoms.

MITRAL INSUFFICIENCY, ONE HUNDRED AND SIX CASES

Rheumatism	50
Tonsillitis	5
Growing pains	6
Scarlet fever	1
Malaria	1
Measles	1
Total	64

In forty-two cases (39.6 per cent.) there was no history of any infection.

At the outset I am prepared to admit that some of these men who denied history of disease may nevertheless have had some infection in infancy. Every intelligent boy, however, can usually carry his history beyond the time he can remember, if he is not an orphan. Furthermore, it is doubtful if infections in infancy have as great a bearing on the development of chronic valvular disease as infections that occur in childhood or later in life.

I think it will be granted that the cases of mitral stenosis and aortic insufficiency were caused by definite changes in the valves leading to shortening, thickening and adhesions. With the cases grouped as mitral insufficiency, the same cannot be said. Possibly the cases with hypertrophy were true lesions of the mitral valve. There are, however, so many varieties of systolic murmurs heard at the apex, many of which are not associated with any disease of the valve but are purely functional in type, that the determination of organic or functional cause is often impossible. Nor does it matter much what the character of the murmur is as long as there is no hypertrophy of the left ventricle and there is normal response to exercise with no history of symptoms.

It will be seen from the table that syphilis played little part in the history of the cases of aortic insufficiency. It must be remembered that these men were for the most part young men under 25 years of age. All our experience goes to show that the aortitis of syphilis is a rather late manifestation and usually is found in men after 30, in most cases after 40.

Although there was no history of infections obtained in some of these cases, it is hard to believe that there had not been some present so mild as to have escaped the notice of the victims. We recognize "walking typhoid," pneumonias so mild that the person does not seek advice and scarlet fever so mild that only the subsequent skin desquamation and the outbreak of other cases give us the clue to diagnosis. Have we not here evidence of endocarditis so mild in type that it does not make its presence known, yet the valves are being irreparably damaged? The mildest cases clinically recognized as such are not necessarily the very mildest due to any particular organism. The cases we see of endocarditis are those that have symptoms sufficiently severe to bring the possessor under medical care. We certainly may assume that there are still milder cases in which there are no symptoms.

SUMMARY

The figures presented in the foregoing show that typical physical signs of aortic insufficiency and of mitral stenosis are found in many young men who have never suffered any inconvenience on account of their heart lesion, and who can give no cause for the development of the cardiac lesion.

Possibly such cases are the very mildest cases of acute endocarditis, running a course absolutely symptomless, and found later accidentally only when a supposedly healthy man is examined.

Health of Glasgow Schoolchildren.—The *Glasgow Medical Journal* for July, 1918, gives in abstract some of the findings of the report of Dr. Andrew of the medical inspection of the schoolchildren of Glasgow for the year ending July 31, 1917. It was found that in no instance did the children come up to the standard of height and weight established by the Anthropometric Committee except in the case of the boys of 5 years whose average height was half an inch greater than the anthropometric standard. A considerable proportion were above the average in nutrition, but there were also a considerable number of undernourished children. Only 26.4 per cent. of the boys had sound teeth and 10 per cent. of the girls. Stammering was found to be more frequent among the boys, twenty-six cases being found among them as against eleven among the girls. Thirty-seven per cent. of the children were suffering from some disease or defect other than nits or vermin. Of those with physical defects, in 1909, there were 58 per cent. with rickets as compared with 29.5 in 1917. The proportion of underfed children was less than in the previous year. There was also an improvement with reference to tuberculosis, the percentage being 17.8 for 1909 and only 11.7 for 1917.

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SATURDAY, SEPTEMBER 21, 1918

PHYSICIANS UNDER THE SELECTIVE SERVICE LAW

The Journal has hoped that special regulations would be issued for the guidance of the Selective Service Boards in the placing of physicians. Up to this time no such special regulations have been promulgated and from present indications none will be promulgated. Hence physicians will go through the same procedures as other men. They will receive the questionnaires from their Local Boards, which they must fill out and return. Incidentally, no matter how many other questionnaires a physician may have received, or from what sources other-questionnaires may have come, that sent by the local board is the one which he must fill out and return. This questionnaire is quite similar to that used for the registrants under the previous registration. In filling out the questionnaire the physician, as every other registrant, must indicate whether or not he desires deferred classification or exemption. If he waives exemption or deferred classification, the matter so far as he is concerned is settled, although others may intervene before the appeal board and ask exemption or deferred classification for him. It may be confidently expected that the number of physicians asking for deferred classification or exemption will proportionately be much lower than is the case with any other calling or profession.

There are three main grounds on which physicians may request exemption or deferred classification. (1) physical disability, (2) dependency, (3) community need.

(1) Comparatively few active practitioners in medicine will claim exemption on the ground of physical disability.

(2) The question of dependency is covered by Series X of the questionnaire. This is a very extended list of questions, and it is intended to secure accurate information regarding each registrant's financial status. In the past some of the selective service boards in considering this question of dependency have also considered the possibility that a physician might secure a commission and, therefore, a superior position in a financial way over the private. On the other hand, many boards have regarded the physician in exactly the same light as other men.

(3) The important group from the physician's standpoint is that in which exemption is claimed under that portion of the law which warrants exemption of "persons engaged in . . . occupations or employments . . . found to be necessary to the maintenance of the military forces or the maintenance of national interest during the emergency," or in those groups specifically designated as exempt. The Provost Marshal-General has prepared an explanatory memorandum covering this point. According to this memorandum the local boards have authority, subject to the right of appeal to the district boards, to pass on claims of registrants who are engaged in the occupations or employments specifically designated by the law as exempted or entitled to deferred classification. Included in this classification are "medical students, county and municipal officials . . . such persons employed in the service of the United States as the President may designate, . . ." In other words, medical students, physicians holding national, county or municipal positions, of importance to the public health, or physicians employed in the service of the United States, for example, on the local boards, whom the President may designate as entitled to exemption, will be exempted by the local boards by making claim on this ground on the questionnaire and producing the necessary proof that they are so engaged.

The district boards have the authority to pass on claims for exemption on the grounds that any particular occupation or employment is neccesary and whether or not the registrant is necessary therein. No individual, group of individuals or organization can usurp this authority. Only these boards can determine what persons — i. e., what physicians — are engaged in "occupations or employments . . . found to be necessary to the maintenance of the military forces or the maintenance of national interests during the emergency." In order to aid the boards in passing on such claims each district board is authorized to appoint three advisers; one is to be nominated by the Department of Labor, one by the Department of Agriculture and one by the district board itself. The law provides for additional advisers when more are required. These advisers are not members of the board, have no right to vote at any meetings, but have definitely advisory powers only. The regulations state, further, and this is a point which applies particularly to physicians:

> "The necessity of not seriously interfering with certain occupations and employments, such as financial, commercial, educational, hospital work, care of the public health, or with the conduct of certain other activities necessary to the public welfare and the prosecution of the war, requires that the District Boards have the cooperation of such advisers so that persons necessary in such activities be not removed there-

from. To this end the adviser nominated by the District Board should bring to the attention of the District Board the questions as to whether or not individuals engaged in some particular industry, occupation, or employment are so necessary thereto as to outweigh the benefit to the Nation should they be drafted into the Army."

This paragraph indicates that the question as to whether a certain physician registrant is needed in a medical college, in a hospital, in civilian practice, in an institution, etc., will be investigated and reported on to the board by the "adviser" nominated by the District Board.

In defining the word "necessary" the boards are instructed that this word implies (1) that the registrant is actually and completely engaged in the occupation and that he is competent and qualified in that capacity; (2) that the removal of the registrant "would result in direct, substantial and material loss and detriment to the effectiveness of the . . . occupation," and (3) "that the available supply of persons competent in the capacity recited in the rule is such that the registrant cannot be replaced in such capacity without direct, substantial material loss and detriment to the effective operation of the industry, occupation or employment." The boards are especially asked to consider (1) the length of time the registrant has been engaged in such capacity, (2) the nature of the claims, study, training or experience and the extent and value of his qualification for the capacity in which he is engaged, and (3) the actual conditions which would result from his removal.

It is obvious that physicians, although not specially considered as a class, have been given special consideration in framing the regulations.

DENTAL BACTERIOLOGY IN RELATION TO DENTAL CARIES

If an attempt is made to bring some order out of the chaos in which the scientific aspects of dental caries seem to be involved, it appears not unlikely that several factors of unlike character are concerned. They have been fancifully represented as "defensive" on the one hand, and "attacking" on the other. Among the latter group, bacteria and carbohydrates probably deserve the foremost attention in the study of the etiology of decay of the teeth. The pioneer studies of Miller on the bacteriology of the mouth gave great weight to his views; hence even today his conception of dental decay still is prominent. Miller's idea was that lactic acid or similar acids produced by bacterial fermentation of the carbohydrates in the mouth are responsible for the decalcification of the enamel, and that the exposed dentin is further destroyed by the proteolytic ferments of the same or similar bacteria. But as Meyer[1] has pointed out in a review of the present status of dental bacteriology, neither Miller nor any of the subsequent investigators has succeeded in finding any organisms strictly specific for caries.

The medical profession has scarcely yet become familiar with the more recent studies of Kligler[2] in this country on the microbiotic flora of the normal mouth and also the changes observed when dental caries occurs. All the families of bacteria are represented in the healthy oral cavity. Most predominant are the representatives of the cocci and streptothrica or trycomycetes group. On the healthy teeth the types of organisms and their relative abundance remain apparently constant, although with the changing conditions in the mouth there is a variation in the total numbers of bacteria. From the available data Meyer has gathered that the number under ordinary conditions in 1 mg. of deposit consists of about twenty-five million organisms, of which one million can be cultivated. In dirty mouths the counts were about twice as high. The growth of oral micro-organisms is just as much influenced by changes in the mouth as is the case for bacterial activity and growth in the soil or in the intestinal tract. The total number of bacteria increases during the night and immediately following a meal. Miller adds that the stagnant conditions in the mouth inducing concentration of fermentable carbohydrates causes a shift in the general relationship of the types to one another, a decrease of the cocci and increase of the forms characteristic for early stages of decay. The number of bacteria on unbrushed teeth were about four times as great as those on brushed teeth. Three times the number of organisms were found in dental deposits immediately after meals, in contrast with that present before meals. Brushing of the teeth or chewing tobacco removes about three fourths of the total number of bacteria.

The first stages of caries which, in the judgment of Kligler, can be considered a specific infection, show enormous counts and an entirely different flora from that of normal teeth. With the progress of decay the character of the dominant micro-organisms changes. As Meyer has summarized it, in comparison with the clean and normal mouth, there is a decrease of the streptococci in all stages of decay and a marked increase in the acidific bacilli. The medium of the mouth is poor in proteins and usually contains carbohydrate; therefore, it is unsuitable for proteolytic organisms. Only in such portions of the buccal cavity, like decayed teeth, where symbiosis with strongly aerobic organisms and cumulation of nitrogenous material produces a suitable soil, can strongly proteolytic anaerobic bacteria exist and develop.

Let it be clearly asserted that the relations of cause and effect are by no means clearly demonstrated in the bacteriologic studies of decay made up to this time. But if one is justifiable, from such somewhat indefinite findings as are presented, in assuming that oral micro-organisms are in some way or to some degree responsible for dental decay, it is logically in order to attempt to eliminate the causal agents. As Meyer indicates, sterilization by chemical means is impossible; and the use of such procedures may actually be harmful to the tissues of the mouth cavity. There is something both novel and modern in the further suggestion of studies along chemotherapeutic lines leading to the possible discovery of highly parasitotropic and slightly organotropic substances in an attempt to gain mastery over the objectionable micro-organisms. The further existence of possible foci of systemic infection in the mouth cavity opens up still different problems. It seems likely, indeed, that bacteriology and the dental clinic will become more closely related to each other in the immediate future.

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[1] Meyer, K. F.: The Present Status of Dental Bacteriology, Jour. National Dental Assn., 1917, 4, 966.

[2] Kligler, I. J.: Jour. Allied Dental Soc., 1915, **10**, 141, 282, 314.

MEDICAL HELP IN THE UNDERNUTRITION OF CHILDHOOD—WHAT NEXT?

Some time ago we referred to the investigations of Osborne and Mendel[1] relating to the capacity to grow after prolonged suspension of growth. They found that when animals were stunted by a variety of methods that involved undernutrition or malnutrition, increment in size could be resumed, even after exceptionally long periods of suppression of growth, provided the diet was made suitable. In other words, the capacity to grow was not lost until it was actually exercised in growing. Another striking feature developed in the researches of the New Haven investigators was the surprising rapidity with which the subsequent gains were made after growth had been inhibited for some time. The rate of gain after enforced failure to grow was far beyond what individuals of the same size experience at the usual normal period of growth. That these results are not confined to the domain of experimental observation has been attested by Manny[2] of the New York Association for Improving the Condition of the Poor. Considerable experience, he states, is now available, from well conducted summer camps, all-the-year stations and from other special situations in which conditions of feeding, sleeping, exercises, etc., are carefully supervised, to prove that the growth of the majority of stunted children can be promoted with almost startling rapidity. The weight charts of the boys in truant schools, for instance, show almost perpendicular advances as soon as a chance for normal growth is afforded.

The class method of improving defective nutrition, which was commented on in an earlier issue,[3] has contributed evidence of a similar sort. Of course there are irremediable hereditary curtailments of growth, and children whom no amount of personal or dietary hygiene will convert into normal sized adults; but when once the immense possibilities of good in the nutrition clinics and classes are admitted,[4] the desirability of organizing such agencies and articulating them with other possible factors for the welfare of childhood deserves serious consideration at a time when man power and woman power must be kept at its maximum.

There is a tendency to look on defective nutrition as the problem of the physiologist and physician solely. For its immediate aspects this is probably a proper view. The worker in home economics now brings additional help into the field, adding helpful social agencies to such factors as the school nurses, the physician, the milk stations, and the visiting nurses. But there is a limit to the powers of the food clinic and the dispensary. As Manny has pointed out, all these measures of relief are social makeshifts compared with the immense work of education and economic readjustment that lies ahead. After all, "what is the matter with the poor is their poverty." And, it may be added, what is the matter with the ignorant is their ignorance. As he says, unless we recognize that defective nutrition in childhood must ultimately be treated as only one aspect of poverty and only one aspect of ignorance and shape our social program accordingly, food clinics and the remedial work of social agencies may only increase the number of children reared in families too poor or too neglectful to be safely entrusted with the reproduction of the race.

THE UTILIZATION OF NUTS AS FOOD

The exigencies of war time have emphasized anew those properties of nuts as foods which remove them from the category of luxuries and place them on the list of substantial components of the day's ration. In considering to what extent nuts may actually be regarded as a good dietary investment, it should be remembered that, compared bulk for bulk, they belong among the most nutritive of foods ordinarily available. They differ from the staple cereal seeds used as human foods in their comparative richness in protein and fat; of the commonly available nuts the chestnut alone contains an abundance of carbohydrate, starch, in place of the nutrients just mentioned.

The reputation of nuts as desirable dietary components has suffered from the widespread belief that these foods are particularly difficult of digestion. Professor Jaffa[1] of the *University of California*, who has furnished some of the best experimentally ascertained facts regarding the utilization of nuts, has remarked that if the true composition of these products were more generally appreciated and their appetizing qualities and food value better understood, they would lose their reputation for being indigestible. This view derives added support from the more recent studies of Cajori[2] at the Yale laboratory of physiologic chemistry. In digestion trials on man with almonds, peanuts, pecan nuts, pine nuts, English walnuts, coconuts, lichi nuts and Brazil nuts the "coefficients of digestibility" for diets including liberal allowances of these components fell essentially within the range of the basal mixed diet of the same persons. In general, says Cajori, the proteins, that is, nitrogenous components, and carbohydrates of the nuts studied were absorbed in large part; and in no case did the quantity of nitrogen or carbohydrate appearing in the feces indicate that these nuts are especially resistant to the digestive functions of the alimentary canal. This conclusion is especially emphasized when the nuts are fed in a finely divided form as nut paste or "butters." Here comminution is artificially obtained in a degree reached only by the most careful mastication.

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[1] Osborne, T. B., and Mendel, L. B.: The Suppression of Growth and the Capacity to Grow, Jour. Biol. Chem., 1914, **18**, 95; The Resumption of Growth After Long Continued Failure to Grow, Jour. Biol. Chem., 1915, **23**, 439; Acceleration of Growth After Retardation, Am. Jour. Physiol., 1916, **40**, 16. Mendel, L. B.: Abnormalities of Growth, Am. Jour. Med. Sc., 1917, **153**, 1.

[2] Manny, F. A.: Defective Nutrition and the Standard of Living, Survey, March 20, 1918.

[3] The Race for Life in Childhood, editorial, The Journal A. M. A., July 20, 1918, p. 194.

[4] Manny, F. A.: Nutrition Clinics and Classes, Mod. Hosp., 1918, **10**, 129.

In view of the growing popularity of so-called nut pastes or nut "butters," it is interesting to note, in Cajori's findings, the difference of digestibility between the peanut, fed as the whole nut and masticated, and peanut butter. The somewhat more favorable outcome with the latter suggests that the texture of the nut product finding its way into the stomach may not be without effect on the digestibility.

According to Cajori, it is doubtful whether cooking causes any marked change in the digestibility of protein-rich nuts. The raw almond appeared to be as completely utilized as the thoroughly steamed nut. In the case of the chestnut, with its abundance of starch, such culinary treatment is essential, as it is in the case of the somewhat comparable potato.

We have already directed attention to Hoobler's[3] assertion that nut proteins may be the equal of animal proteins and superior to others of vegetable origin as components suitable for the elaboration of milk in the diets of lactating mothers. Cajori's studies lead him to the conclusion that if nuts are eaten properly and used in the diet as are eggs, meats and other foods rich in protein, they have "a physiological value on a par with that of more common staple articles of the diet." In harmony with this is the conclusion of the latest pronouncement of the experts of the U. S. Food Administration,[4] pointing out that nuts should be counted as part of the necessary food and not eaten as an extra. We are led to believe that "the occasional indigestion following injudicious eating of cheese and nuts is probably often due to forgetting that they are very substantial foods and eating them at the end of an already sufficient meal."

There are abundant indications that nuts which have long found a valued place in the dietary of the diabetic without detriment to his health will grow in popularity as foods for the well. The acreage of peanuts—legumes usually classed with nuts and forming the most valuable nut crop of the United States—increased 60 per cent. last year. A few years ago the importations of other nuts had already approached 100,000,000 pounds a year. This speaks promisingly for the progress of these meat substitutes.

A THEORY OF PERISTALSIS

What is the explanation of the orderly progress of the food residues along the alimentary tract? It is evidently dependent on a well regulated mechanism that provides for a downward movement from the stomach to the colon. According to the "law of the intestine" that is currently taught, a stimulus, such as is represented by the presence of a bolus of food, applied to any part of the intestine normally provokes a contraction above and a relaxation below the place of application. The result of this is a forward movement by propulsion of the food mass.

The phenomenon just outlined appears to be associated with a suitable reflex—the myenteric reflex, as it has been termed—which forms the basis for the control and proper sequence of the progressive peristalsis. A difficulty in accepting such an interpretation has arisen, however, because of the apparent lack of any nervous arc over which the regulatory impulses could travel. Furthermore, to quote a recent critic, if the reflex were always active the bowel would soon be emptied. Food once introduced into the duodenum would never stop in its rush to the anus. These and other considerations involving the insufficiency of the "law of the intestine" as an explanation of the peculiarities of intestinal activity have led Alvarez of the University of California Medical School to emphasize the unlike irritability of different parts of the small intestine as a possible explanation of the "downward progress" of food. He is convinced from extensive comparative studies of the irritability, tone, latent period, susceptibility to trauma and toxins, reactions to drugs, etc., of segments from different parts of the intestine that in the different regions there exist different muscles suited to different functions. In the latest researches,[1] not only gradients of irritability and rhythmicity but measurable differences in metabolism have been demonstrated in the intestinal muscle from the duodenum to the colon. These gradients are believed by Alvarez and Starkweather to determine the direction of peristalsis. Thus, they say, the feces could not lie quietly in the cecum or colon if the muscles there were as active and as responsive to stimuli as they are in the duodenum.

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[1] Jaffa, M. E.: Bulls. 107 (1901); 132 (1903); 332 (1910), Office of Expt. Sta., U. S. Dept. Agr.

[2] Cajori, F. A. The Utilization of Some Nuts as Food, Jour. Home Economics, 1918, **10**, 304.

[3] Hoobler, B. R.: Problems Connected with the Collection and Production of Human Milk, The Journal A. M. A., Aug. 11, 1917, p. 421.

[4] Food Guide for War Service at Home, Prepared under the Direction of the U. S. Food Administration, New York, Charles Scribner's Sons, 1918.

[1] Alvarez, W. C., and Starkweather, Esther: XI, The Metabolic Gradient Underlying Intestinal Peristalsis, Am. Jour. Physiol., 1918, **46**, 186.

Whether this novel hypothesis will gain adherents remains to be seen. Accelerated metabolism may be the expression of greater activity in a muscle—an accompaniment rather than a forerunner or cause of it. The crux of the matter, in any event, is that the duodenum shows greater metabolism and greater activity, even in the form of isolated strips free from reflex nervous impulses, than do the succeeding portions of the bowel. It is not difficult to believe that changes in the "gradient of metabolism" affecting the performance of the intestine in certain localities might give rise to symptoms of disorder.[2] More facts are needed, however, to substantiate the theory.

Current Comment

THE CHEMISTRY OF THE PLACENTA

Tissue analysis has not as a rule yielded to the physiologic chemist that reward of significant information which such painstaking and somewhat arduous work deserves. Several reasons may readily be advanced to explain this. The methods for differentiating the various types of tissue components with quantitative accuracy are still far from satisfactory. Furthermore, wherever groups of cells are organized into larger structures, the fundamental components of cellular protoplasm will be found present in sufficient amount to overshadow, so to speak, incidental more specific constituents of the living matter and thus render their detection or exact determination more difficult. Finally, most tissues are so permeated with blood vessels and lymph spaces as to introduce extraneous fluids in sufficient amounts to complicate the analytic problem. In illustration of these comments we may refer to analyses of various human organs as published some time ago by Drummond[3] of the Cancer Hospital Research Laboratory in London. Without mentioning details, it will suffice to note that the data represent the distribution of nitrogen in the various familiar types of derivatives of that element which make up the tissues. A comparison of the figures for the breast, liver, pancreas, spleen, kidney and both plain and striated muscle shows a surprising uniformity, giving no basis for the formulation of hypotheses respecting the avowedly unlike functions of such unlike body structures. In contrast with these findings, Harding and Fort[4] of McGill University have reported a series of comparable analyses of mature human placentas which seem to show a high yield of the diamino-acid arginin as a distinguishing feature of the placenta protein. The figures speak for double the content of this compound yielded by other human organs. Arginin has been asserted to have some relation to the formation of creatin and creatinin; and it has also been assigned a rôle in the synthesis of purin compounds and thus of new nuclear material. However suggestive this may be to the student of fetal growth, it is still too vague, and the experimental records are still too uncertain or contradictory of other findings to serve as the basis of more than interesting speculation. If we cite the Canadian biochemists' conclusion that, corresponding to the difference in arginin yield, there must be ascribed to the placenta a function differing from that of other organs, the vagueness does not vanish. When the further assertion is quoted, namely, that the placenta from a chemical standpoint cannot be regarded entirely as a passive organ, we reiterate a belief that has been voiced before, though on the basis of different evidence.

THE NEED FOR VOLUNTEERS

Thus far the medical profession has shown a splendid spirit of patriotism and self-sacrifice in volunteering for service in the Medical Department of the Army. The time for volunteering is not over. The new conscription act raising the age limit to include those under 46 does not end the call for volunteers. Further, it is now announced that the first call will include only those up to 36 years of age. So far as physicians are concerned, therefore, this will include only 4 years—32 to 35 inclusive. This will not supply a large number of medical officers—not sufficient to meet the demands that will soon be made on the Surgeon-General for medical officers. And even though the first draft included all up to 46, there would still be room for the volunteer. We are prompted to emphasize this point because of letters that have been received from physicians over 46 years of age who evidently are under the impression that there will be no opportunity now for them to offer their services; also because there is an immediate need for volunteers. Preparations are being made for a big army. This army may be so large as to require 40,000 physicians. In fact, the call for volunteers is almost as urgent today as it has been at any time since the war started. It might be well here to emphasize that under the new conscription law physicians will have practically the same status as they had under the former law: many who neglected to apply for commissions were inducted into the army as privates. In some instances they served as privates for a considerable period of time on account of the procedure involved in applying for and in issuing the commission.

The War and Physical Deterioration.—In a war of attrition such as this, physical deterioration of the masses of society in consequence of inadequate nourishment results in a serious decline in national morale; and this is a decisive factor in the outcome of the struggle. Food and other physical necessities will win the war. We must therefore not only conserve food and other necessities, but, more important, we must insure ample production of them through a lessening of the production of nonessentials.—H. G. Moulton, *Economist.*

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[2] Alvarez, W. C.: The Syndrome of Mild Reverse Peristalsis, The Journal A. M. A., Dec. 15, 1917, p. 2018.

[3] Drummond, J. C.: Biochem. Jour., 1916, **10**, 473.

[4] Harding, V. J., and Fort, C. A.: The Amino-Acids of Mature Placenta, Jour. Biol. Chem., 1918, **35**, 29.

Medical Mobilization and the War

Relation of Volunteer Medical Service Corps to Members of Draft Boards and Other Physicians Registered Under Selective Service Act

The following is a telegram, dated September 17, from the Provost Marshal-General:

Membership in Volunteer Medical Service Corps is not service in the military establishment and does not therefore affect in any way the status of registrants before the Selective Service Boards. This statement cannot be made too emphatic. It is unfortunate that any impression has arisen to the contrary.

This matter is of particular importance to medical members of draft boards. Such members of draft boards may not continue to serve thereon after being commissioned in the Medical Corps of the Army or Navy. In view of the enormous labor involved in the physical examination of millions of men in the next few months, the Provost Marshal-General's Office feels very strongly that its needs are vital during the period covered by these examinations, and that it must retain the services of medical members of demonstrated efficiency. It has, therefore, requested the cooperation of the Surgeon-Generals of the Army and Navy and each one of these heads is cooperating by discontinuing for the present the commissioning of medical members of the draft boards in their respective arms of the service. The Surgeon-General of the Public Health Service is cooperating in a similar way. But no question of eligibility to continue to serve as a medical member of the draft boards arises in connection with membership in the Volunteer Medical Service Corps, and resignations of physicians on Selective Service Boards will not be accepted when based on membership in Volunteer Medical Service Corps. Instructions to this effect are going out today to all draft executives.

CROWDER.

For the Promotion of Medical Officers

Secretary Daniels of the Navy has appointed a board to recommend medical officers for promotion. The members of the board are: Rear Admiral Cary T. Grayson, U. S. Navy, president; Rear Admiral E. R. Stitt, U. S. Navy; Rear Admiral G. H. Basher, U. S. Navy; Capt. A. M. D. McCormick, U. S. Navy; Capt. L. W. Sprayling, U. S. Navy; and Lieut. A. C. Stanley, U. S. Navy, Ret., recorder. Two officers are to be recommended to the temporary rank of rear admiral, 7 to the permanent rank of captain, 15 to temporary captain and 41 to temporary commander. Promotion will depend on fitness. The board is to arrive at its conclusions as to which officers are best fitted for advancement without regard to the place such officers at present occupy on the list. Seniority among officers in the same rank relates to their comparative precedence, and has no bearing on their right to advancement.

War Department Permits Student Nurses to Render Army Service in France

In compliance with the wishes of the Medical Department in France, the fifty American hospitals which organized base hospital units for service overseas are to be permitted by the War Department to send a limited number of student nurses to France where they may both render service and complete their training under representatives of their own schools in base hospitals abroad. However, the War Department does not wish to interfere with the work of hospitals in this country and will leave the decision as to the adoption of the plan to the hospital authorities. Most of the pupils selected will be seniors and will be enrolled in the Army School of Nursing. After taking the oath they will be placed on duty under the nursing staff of their own base hospital overseas, each unit of twenty-five being in charge of a graduate nurse acceptable to the schools sending the students and to the Surgeon-General. The plan of using student nurses at the base hospitals in this country has resulted in response from more than 1,000 applicants who have been assigned to base hospitals at camps or who are awaiting assignment, and who after a year of training in this country will be eligible for assignment in American hospitals abroad. These students will receive an opportunity to learn branches of nursing not taught in Army hospitals by spending a certain period in a civilian hospital, under a system of exchange to be worked out with civilian hospitals. This system will also make the civilian nurse eligible for the Army Nurse Corps after her graduation.

Women not eligible for admission to the Army School of Nursing or to civil hospitals may become "hospital assistants," being assigned to convalescent hospitals in this country where training units are to be established. Those not having completed the Red Cross courses in elementary nursing and hygiene, first aid to the injured and dietetics, will be required to take a similar course extending over a period of at least six weeks. The qualifications for admission are: married women between the ages of 21 and 40 whose husbands are overseas and who are free to give their service, and single women between 35 and 45. Candidates must have a high school education or its equivalent. Application should be made to the Division of Hospital Assistants of the Army School of Nursing through the division directors of the Bureau of Nursing of the American Red Cross, to the Army School of Nursing, Surgeon-General's Office, Washington, D. C.

COMMISSIONS ACCEPTED, MEDICAL CORPS, U S. ARMY

Previous lists published in THE JOURNAL, June 1, 22 and 29, July 13, 20 and 27, August 3, 10, 17, 24 and 31, September 7 and 14.

ALABAMA

Birmingham—Long, D. J.
Watterston, C. J.
Hartsells—White, A. M.
Selma—Jones, L.

ARKANSAS

Hope—Smith, A.
Pine Bluff—Reinberger, J. R.

CALIFORNIA

Glendale—Brown, H. V.
Teel, A. W.
Los Angeles—Early, C. E.
Williams, E. H.
Oakland—Purcell, E.
Orange—Marsden, S. A.
Pasadena—Fiske, H. A.
Piedmont—Van Nuys, R. G.
San Francisco—Boge, H. G. G.
Santa Ana—Wehrly, J.
Watsonville—Wayland, C.

COLORADO

Denver—McEachern, C. G.
Haxtum—McKnight, J. H.

CONNECTICUT

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Naugatuck—Woodford, C. N.

DISTRICT OF COLUMBIA

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Metter—Simmons, W. E.
Waycross—Carswell, H. J.

ILLINOIS

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Kuhn, L. P.
Martin, J. I.
McCahill, M.
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Stevens, H. C.
Ipava—Snively, C. D.
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Morrison—Pettitt, H. L.
Peoria—Seaburg, E. W.
Sumner—Hockman, B. F.

INDIANA

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Hebron—Titus, J. M.
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Lafayette—Brockway, C. J.
Crockett, F. S.
Marion—Ross, J. C.
South Bend—Sensenich, R. L.

IOWA

Churdan—Cressler, F. E.
Keokuk—Armentrout, C. R.

KANSAS

Great Bend—Russell, M. F.
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KENTUCKY

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MAINE

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MARYLAND

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Streett, S. H.
Talbott, J. E.

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Stevens, H. B.
Holyoke—Gibson, F. L.
Lincoln—Loring, R. G.
Lowell—Blanchard, P. D.
Northampton—Cobb, C. T.

MICHIGAN

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Ann Arbor—Georg, C., Jr.
Battle Creek—Stone, R. C.
Crystal Falls—Bovik, L. E.
Detroit—Lange, A. H.
Lynch, E. J.
Flushing—Smith, D. C.
Grand Rapids—Boet, F. A.
McPherson, A. C.
Oxford—Bachelor, J. W.
Port Huron—Kesl, G. M.
Reading—Bell, T. H. E.

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Duluth—Johnson, J. V.
Graceville—Oliver, C. I.
Le Roy—Morse, M. P.
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Groebner, O. A.
Hamilton, A. S.
Onamia—Roadman, I. M.

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Rodney—Smith, D. S.

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St. Louis—Dean, J. M.
Hanser, H. A.
Happel, H. E.
Kennedy, W. U.
Schwartz, F. C.

MONTANA

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    Flynn, J. J.
Roundup—Lackner, F.

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    Hagerty, J. F.

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Magdalene—McCreary, M.

NEW YORK

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    Tirman, S.
[illegible], H. W.
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Jamaica—Distler, G. A.
New York—Cott, D. R.
    Ehlers, T. G. M.
    Fellows, H. H.
    Perkins, C. E.
    Perkins, C. W.
Syracuse—Shimberg, M.
Troy—Judge, T. F.
Tompkinsville—Henry, T. B.

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    Curl, R. B.
    Mellott, E. R.

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Indiana—Buterbaugh, H. B.
Kennett Square—Bickell, U. G.
Philadelphia—Miller, H. W.
    Smith, L. G.
    Torrey, R. G.
Pittsburgh—Fyke, W. F.
    Nevins, H.
Scott—Zaccheus, R.
Ridgway—Flynn, J. G.
Scranton—Morse, C. R.
Sutersville—Baer, H. L.

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Greer—Lanford, M. L.
Mayesville—Mills, J. H.

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Sevierville—Rogers, J. W.

TEXAS

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    Jinkins, W. J.
Kountze—Hart, F. B.
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Waco—Colgin, I. E.
    Manney, J. E.
    Wood, R. S. K.
Woodville—Pate, S. J.

UTAH

Brigham—Weymuller, E. A.
White Rocks—MacNeil, B. C.

VERMONT

Brandon—Cray, E. J.
Burlington—Brown, T. S.
Manchester—Kelley, L. M.

VIRGINIA

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WASHINGTON

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Tacoma—Davies, J. S.
Yakima—Keeler, C. E.

WEST VIRGINIA

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Spencer—Robertson, G. C.
St. Albans—Wilson, W. H.
White Sulphur Springs—Myles, W. E.

WISCONSIN

Elderon—Phelps, E. J.
LaCrosse—Zuercher, J. C.
Milwaukee—Hall, B. M.
    McJunkin, F. A.

CORRECTION

In the issue of July 6 under the heading "Orders to Officers of the Medical Reserve Corps" appears the announcement of the resignation of Lieut. CHARLES H. BAILEY, of East Liverpool, O. An error was made in the transmission of this order since Dr. Charles H. Bailey is now a captain in the Medical Reserve Corps and is on duty overseas.

COMMISSIONS OFFERED AND ORDERS TO DUTY ON ACCEPTANCE

Alabama

To Camp Beauregard, La., base hospital, Capt. S. G. GAY, Selma.

To Camp Lee, Va., Lieuts. J. R. CHANDLER, Ishkooda; J. D. ATKINS, Mobile.

To Camp Sheridan, Ala., Capts. A. H. OWENS, Ashland; J. S. GAY, Delta; Lieuts. L. A. COLEMAN, Abbeville; C. H. CLEVELAND, Anniston; J. S. HARMON, Elmore.

To Fort Oglethorpe for instruction, Major C. T. POLLARD, Montgomery; Capt. J. H. ASHCRAFT, Fayette; Lieuts. J. A. MILLER, Birmingham; G. B. COLLIER, Tuskegee.

To Montgomery, Ala., Lieut. D. H. THROATT, McFall.

Arkansas

To *Camp Sheridan, Ala.*, Capt. J. C. WILKINS, Hot Springs; Lieuts. R. MARTIN, Warren; M. C. CRANDALL, Wilmot.

To Fort Oglethorpe for instruction, Capts. I. N. McCOLLUM, Conway, W. D. JUDKINS, Little Rock; B. H. HAWKINS, Mena; Lieuts. J. H. NEAL, E. M. THOMPSON, Fort Smith; G. L. HENDERSON, Greenbrier; J. T. MATTHEWS, Heber Springs; G. L. WILSON, Hermitage; J. H. STIDHAM, Hoxie; E. D. WALL, Marianna.

To Fort Riley for instruction, Lieuts. S. E. SMITH, Banks; J. L. BAIRD, G. E. PAULLUS, Marked Tree.

California

To Camp Fremont, Calif., base hospital, Capts. F. C. GERLACH, A. S. J. SMITH, San Jose.

To Camp Kearney, Calif., as assistant to the camp surgeon, C. F. METCALF, South Pasadena. Base hospital, Capts. M. P. BURNHAM, Burlingame; W. H. GILBERT, H. B. TEBBETTS, Los Angeles; G. T. POMEROY, Oakland; H. SPIRO, San Francisco; F. D. WALSH, Susanville; Lieuts. F. K. POMEROY, Fresno; D. H. RANSOM, Madera.

To Fort MacArthur, Calif., as tuberculosis examiner, Capt. C. C. BROWNING, South Pasadena.

To Fort Oglethorpe for instruction, Capts. T. S. COLLINS, A. H. JONES, Los Angeles; F. H. THIBODO, Placentia; C. E. HABLUTZEL, San Jose; Lieuts. W. H. WIMP, Haltville; R. A. SANDS, Venice.

To Fort Riley for instruction, Capts. J. H. TITUS, Ontario; V. D. BROWN, San Francisco; Lieuts. C. L. TERRILL, Farmington; W. ALBERT, B. M. FREES, Los Angeles; W. L. YAGER, Ludlow; H. J. DAVIS, Sacramento.

To San Francisco, Calif., Letterman General Hospital, Capts. E. M. PALLETTE, Los Angeles; C. A. BELL, Santa Barbara.

Colorado

To Fort Oglethorpe for instruction, Capts. C. J. LATTS, Haxtum; P. L. LEYDA, Lafayette; J. R. McCRACKEN, Nederland.

To Fort Riley for instruction, Lieut. J. G. STEWART, Grover.

Connecticut

To Fort Oglethorpe for instruction, Lieuts. W. J. H. FISCHER, Milford; R. W. LOWE, Ridgefield.

District of Columbia

To Fort Oglethorpe for instruction, Capts. E. BARRY, W. T. H. PALLISTER, Lieut. F. T. CHAMBERLIN, Jr., Washington.

To Washington, D. C., Lieut. C. F. X. LEIBELL, Washington.

Florida

To Camp McClellan, Ala., Lieut. M. R. MARKEY, Bronson.

To Fort Oglethorpe for instruction, Lieut. E. D. FRENCH, Jacksonville.

Georgia

To Camp Lee, Va., Lieuts. G. F. CHAMBERS, I. C. EVANS, Columbus.

To Camp Sheridan, Ala., Lieuts. W. B. HELLER, Lavonia; E. L. STURKEY, Lincolnton.

To Fort Oglethorpe for instruction, Capts. C. B. WALLING, Collins; J. R. YOUMANS, Columbus; S. M. WITHERS, Moultrie.

To Hoboken, N. J., Lieut. G. W. BAGLEY, DeSoto.

Idaho

To New York, Neurological Institute, for instruction, Capt. J. L. S. STEWART, Boise.

Illinois

To Camp Custer, Mich., Capts. C. P. HORNER, G. T. SMITH, S. WICKS, I. ZABOKRTSKY, Chicago; D. L. HEDBERG, Lee; C. S. AMBROSE, Waukegan; Lieuts. H. J. HALVORSEN, H. P. MARTIN, H. W. MARTIN, Chicago; J. R. HIGGINS, Gillespie.

To Camp Grant, Ill., Capts. J. H. MURPHY, Geneseo; H. E. MONROE, Shelbyville; Lieut. R. E. MILTENBERGER, Spring Valley. *To examine the command* for nervous and mental diseases, Lieut. R. H. STENGER, Kankakee.

To Camp Shelby, Miss., base hospital, Lieut. H. R. BASINGER, Chicago.

To Fort Oglethorpe for instruction, Capts. C. A. ALBRECHT, L. A. BEATON, H. L. KRETSCHMER, J. B. STACKABLE, W. B. WHITAKER, Chicago; H. D. HULL, Crystal Lake; C. B. RIPLEY, Galesburg; R. L. TRUITT, Naperville; G. H. AYLING, St. Anne; F. L. GOURLEY, Waukegan; Lieuts. H. W. BRANN, Centralia; L. P. PIPER, Chicago; J. A. BOZARTH, East St. Louis; T. W. ROBERTS, Joppa; E. J. BURKE, LaSalle; J. L. TOMBAUGH, Odell; J. B. ROE, Oregon; J. B. WICKENSIMER, Steger.

To Fort Riley for instruction, Capt. F. H. MARTIN, Libertyville.

To Hoboken, N. J., Lieut. H. D. LUSE, Chicago.

To New Haven, Conn., Capts. H. J. CORPER, Chicago; E. MORRIS, Oak Forest.

Indiana

To Ann Arbor, Mich., State Psychopathic Hospital, for instruction, Capt. C. C. FUNK, New Albany.

To Camp Custer, Mich., Capts. M. A. AUSTIN, Anderson; T. M. STALEY, Bicknell; Lieuts. L. F. BILLS, Atlanta; E. G. BOUNELL, Hillsboro; F. E. JACKSON, Indianapolis; R. D. ARFORD, Middletown; H. W. MARKLEY, Redkey; C. S. CARMICHAEL, Seelyville; N. A. JAMES, Tell City; H. D. McCORMICK, Vincennes; E. A. SPOHN, Walton.

To Camp Grant, Ill., N. L. HELLER, Dunkirk.

To Camp Lee, Va., Lieuts. P. ARMSTRONG, Gilman; D. W. BELL, Otwell; E. R. GIBBS, Wilkinson.

To Camp McClellan, Ala., base hospital, Capt. H. A. VAN OSDOL, Indianapolis.

To Camp Sheridan, Ala., Capt. H. L. MILLER, West Baden.

To Camp Sherman, Ohio, Capt. A. W. SCHREIBER, LaFayette; Lieuts. G. F. GREENLEAF, Hammond; C. S. BRYAN, Vincennes; G. B. DeTAR, Winslow.

To Fort Oglethorpe for instruction, Capts. J. A. RAWLEY, Brazil; E. M. HOOVER, Elkhart; H. H. WHEELER, Sr., Indianapolis; M. N. THAYER, Linton; C. H. McCUI[illegible] MOLLOY, Muncie; Lieuts. F. G. KELLER, [illegible] Ashley; O. A. DELONG, Azalia; [illegible] STACKHOUSE, Cates; D. S. STR[illegible] J. H. HARE, Logansport; H. E. [illegible] HEATH, Napoleon; J. L. WILSON, South Bend; E. T. EDWARDS, Vincennes; C. A. ROARK, Waynestown.

To Fort Riley for instruction, Capts. W. R. DAVIDSON, Evansville; W. V. STANFIELD, New Town; Lieuts. N. STERN, Indianapolis; O. H. McDONALD, London; C. B. PAYNTER, Salem.

Iowa

To Camp Custer, Mich., Capts. E. F. TALBOTT, Grinnell; W. K. LONG, Hampton; Lieuts. J. E. BAKER, Maynard; G. H. BOETEL, Rock Rapids.

To Camp Dodge, Iowa, Lieut. H. F. MASSON, Washington. Base hospital, Capt. A. H. BLOCKLINGER, Dubuque; Lieut. L. E. HOOPER, Beech.

To Fort Oglethorpe for instruction, Capts. H. D. MERENESS, Dolliver; M. J. MOES, Lieuts. O. A. BROWNSON, Dubuque; H. H. HAGEDORN, Sioux City; E. D. MILLER, Wellman.

To Fort Riley for instruction, Capts. S. A. HUBER, Charter Oak; C. B. ROGERS, Earlville; Lieut. F. P. WINKLER, Sibley.

To Fort Sam Houston, Texas, base hospital, Lieut. C. H. LAUDER, Grinnell.

Kansas

To Camp MacArthur, Texas, Capt. F. F. NETHERTON, Wellington.

To Fort Des Moines, Iowa, Capts. J. T. FAULKNER, Lansing; C. E. ROSS, Wichita.

To Fort Oglethorpe for instruction, Capt. C. S. THIMBLE, Emporia; Lieut. C. B. BAILEY, Hawkinsville.

To Fort Riley for instruction, Capts. H. MORRISON, Smith Center; E. M. SEYDELL, Wichita; Lieuts. C. L. BROWN, Cawker; J. F. McNAUGHT, Girard; W. E. KNOX, Norcatur.

Kentucky

To Camp Lee, Va., Lieuts. G. L. DYER, Buechel; B. G. GRIBBLE, Louisville.

To Camp Sheridan, Ala., Lieut. J. S. GILBERT, Lancaster.

To Camp Zachary Taylor, Ky., Capt. A. P. MUELLER, Louisville.

To Fort Oglethorpe for instruction, Capts. W. F. ALVEY, Elizabethtown; C. C. DeWITT, Louisville; H. R. MILTON, Wickliffe; Lieuts. C. W. KELLY, Jr., F. C. THUM, Louisville.

Louisiana

To Camp MacArthur, Texas, Lieut. R. L. ARMSTRONG, Pleasant Hill.

To Fort Oglethorpe for instruction, Capt. E. HOLLOWAY, Plaquemine; Lieuts. L. D. LAFARGUE, Effie; M. WOLF, New Orleans.

Maine

To Fort Oglethorpe for instruction, Capt. W. B. MOULTON, Portland; Lieuts. O. C. MOULTON, South Windham; N. BISSON, Waterville.

To Hoboken, N. J., Lieut. L. W. CARPENTER, Limerick.

Maryland

To Camp Lee, Va., Lieut. H. A. CANTWELL, North East.

To Fort Oglethorpe for instruction, Capt. W. H. HOPKINS, J. O. PURVIS, Annapolis; H. M. LANKFORD, Princess Anna; Lieuts. S. R. WANTZ, E. M. WHEELER, Baltimore; C. T. FISHER, Princess Anne; S. N. PILCHARD, Salisbury; F. E. SHIPLEY, Savage.

To Hoboken, N. J., Lieut. C. S. CROOK, Baltimore.

Massachusetts

To Camp Devens, Mass., as assistant to the camp surgeon, Capt. H. V. W. BOYD, Springfield. Base hospital, Capts. F. C. JILLSON, West Roxbury; J. W. CAHILL, Worcester. *To examine the command* for *nervous and mental diseases,* Capt. A. W. FAIRBANKS, Boston.

To Camp Meade, Md., base hospital, Capt. G. E. EMERY, Worcester; Lieut. H. H. FLAGG, Boston.

To Fort Oglethorpe for instruction, Capts. E. FLAGG, Boston; J. J. McNAMARA, Brockton; C. C. BURPOE, Malden; L. J. MASKELL, Newton; H. C. CHENEY, Palmer; R. S. BENNER, R. B. OBER, Springfield; A. L. NEWHALL, West Lynn; F. J. HANLEY, Whitman; Lieuts. A. J. J. SULLIVAN, Fall River; F. H. LALLY, Milford; C. G. YERBURY, Springfield; G. L. STEELE, West Springfield; C. B. KENNEY, Wichendon.

To Hoboken, N. J., Capt. R. T. STEARNS, Boston; Lieuts. D. J. HERLIHY, Cambridge; W. S. LYON, Fall River; R. A. TAYLOR, Waltham.

Michigan

To Camp Custer, Mich., Lieut. C. A. VAN DUSEN, Ogden Center.

To Camp Dix, N. J., base hospital, Lieut. R. L. COWEN, Detroit.

To Camp Dodge, Iowa, base hospital, Lieut. J. M. SUTHERLAND, Detroit.

To Camp Grant, Ill., Lieut. G. D. BRIGGS, Flint.

To Camp Sherman, Ohio, Lieuts. M. SACHNOVITZ, Detroit; I. W. GREENE, Richmond.

To Fort Oglethorpe for instruction, Capts. H. M. JOY, Calumet; E. M. CURRIE, G. P. MYERS, Detroit; J. W. ORR, Flint; H. W. DINGMAN, Grand Rapids; Lieuts. F. DWYER, A. C. HALL, G. H. HEALY, C. J. JENTGEN, Detroit; C. E. BOONE, Holland.

Minnesota

To Camp Custer, Mich., Lieuts. C. F. HOLST, Little Falls; R. C. RADABAUGH, Mazeppa.

To Fort Oglethorpe for instruction, Capts. A. E. BOOTH, Minneapolis; C. F. McNEVIN, L. A. NELSON, St. Paul; Lieut. F. A. OLSON, Minneapolis.

To Fort Riley, Lieut. A. R. ANDERSON, Barnum.

To New Haven, Conn., Lieut. L. G. GUYER, Waseca.

Mississippi

To Camp MacArthur, Texas, Lieut. J. M. GOLDEN, Lena.

To Camp Sheridan, Ala., Lieut. J. P. WHITE, Mount Olive.

To Fort Oglethorpe for instruction, Capts. J. B. STONE, Belen; E. R. McLEAN, Cleveland; T. H. SEAY, Laurel; Lieut. P. B. RUSSELL, Lena.

Missouri

To Camp Custer, Mich., Capts. S. V. BEDFORD, Jefferson City; C. F. WRIGHT, St. Louis.

To Camp Dodge, Iowa, Lieuts. J. D. TUNNELL, Reger; L. G. McKELLOPS, St. Louis.

To Camp MacArthur, Texas, Lieut. E. N. FRAKES, Harrisburg.

To Fort Oglethor[illegible] C. H. VAN RAVENSWAAY, Boonville; [illegible]ntralia; W. T. BISHOP, Hughsville; L. B. GREENE, Kansas City; B. T. QUIGLEY, Mound City; W. M. WHEELER, Sedalia; H. B. GETTYS, J. H. HUMPHREY, St. Louis; Lieuts. S. H. O. STRATTON, Lincoln; C. S. STRATTON, Roscoe; H. S. COHRAN, St. Joseph; F. E. CHASE, W. H. REIM, St. Louis.

To Fort Riley for instruction, Lieuts. L. E. MONROE, Bonne Terre; J. C. CALDWELL, LaClede; D. C. PERRY, Mound City.

To New Haven, Conn., for instruction, Lieut. W. CAMPBELL, Kansas City.

Montana

To Camp Grant, Ill., base hospital, Lieut. G. F. TURMAN, Missoula.

To Fort Oglethorpe for instruction, Capts. O. T. STRATTON, Cascade; J. H. DRAKE, Hardin; Lieut. J. T. HOLMES, Polson.

To Fort Riley for instruction, Lieuts. J. M. GRAYBEAL, Belgrade; C. L. SMITH, Simms.

Nebraska

To Camp Pike, Ark., base hospital, Capt. F. W. LAKE, Omaha.

To Fort Oglethorpe for instruction, Lieuts. R. W. FOUTS, Dawson; C. N. COE, Wakefield.

To Fort Riley for instruction, Capts. B. M. DEARDORF, Clatonia; C. K. GIBBONS, Kearney; C. L. FAHNESTOCK, McCook; F. P. REED, Weeping Water; Lieuts. J. M. McNALLY, Bellwood; G. E. PETERS, Bloomfield; H. D. LURVEY, Omaha; J. M. STOOPS, Scottsbluff.

New Hampshire

To Fort Oglethorpe for instruction, Capt. W. P. CRAIG, Walpole; Lieut. P. R. HOYT, Laconia.

To Hoboken, N. J., Lieut. E. R. B. McGEE, Berlin.

New Jersey

To Camp Dix, N. J., base hospital, Capt. D. B. STREETT, Jersey City.

To Camp Lee, Va., Lieuts. T. R. ADAMS, Califon; C. A. BIRDSALL, Jersey City.

To Fort Oglethorpe for instruction, Capt. J. S. DOUGLASS, Cape May; Lieuts. C. B. KELLEY, Jersey City; M. E. STREEN, Newark; J. J. LEVY, Ocean Gate; H. N. WAIT, Roselle Park.

To Hoboken, N. J., Lieut. T. M. BRENNOCK, Jersey City.

New Mexico

To Fort Oglethorpe for instruction, Lieut. M. McCAHILL, Albuquerque.

To Fort Riley for instruction, Lieut. L. A. THOMPSON, Springer.

New York

To Camp Hancock, Ga., base hospital, Capt. H. G. DUNHAM, New York.

To Camp Lee, Va., Capts. W. F. FOWLER, Rochester; J. D. GEORGE, Verona; Lieuts. D. G. COOPER, Albion; S. BAUM, New York.

To Camp Meade, Md., base hospital, Capts. B. W. MABEN, Kingston; W. S. MILLS, New York.

To Camp Zachary Taylor, Ky., Lieuts. J. BIER, J. A. HYAMS, New York.

To Fort Oglethorpe for instruction, Major V. C. PEDERSEN, New York; Capts. V. M. RICE, Batavia; H. V. HOLCOMB, Bellmore; J. LONG, J. E. THOMPSON, Brooklyn; J. A. CONWAY, Hornell; L. F. CLELAND, Libbon; C. E. ELKINS, Massena; J. G. HOWARD, Ozone Park; A. S. ARMSTRONG, B. H. CAPLES, J. B. HADEN, P. W. ROBERTS, A. S. TENNER, New York; J. R. BROWNELL, Perry; F. J. FULLER, Potsdam; F. C. REED, Schenectady; J. A. AMES, West Henrietta; Lieuts. H. A. VOGEL, Albany; C. A. HARGITT, B. NEWMAN, Brooklyn; W. G. MILLER, Freeport; E. W. PRESLEY, Great Kills; J. F. LARKIN, Kingston; T. SMITH, New-[illegible] HALPERN, C. H. HOWELL, R. L. [illegible] E. M. SCHWARTZ; H. L. SLOAN, [illegible]; J. F. BROWNE, Rochester; H. C. [illegible]

To Hoboken, N. J., Capts. E. W. BANTA, M. ROSENFELD, New York; Lieuts. S. D. PIQUET, Brooklyn; S. H. LEVY, Buffalo; H. C. HOFF, New York.

To Lakewood, N. J., Lieut. A. T. MAYS, Brooklyn.

To New Haven, Conn., Lieut. M. GREENWALD, New York. Yale Army Laboratory School, for instruction, Capt. C. W. FIELD, New York.

To New York, Neurological Institute, Lieut. W. C. PORTER, Poughkeepsie.

To Plattsburg Barracks, N. Y., Lieut. M. E. COSTELLO, Branchport.

To Washington, D. C., Surgeon-General's Office, Major G. R. BUTLER, Brooklyn.

North Carolina

To Camp Lee, Va., Lieut. J. D. MAYNARD, Wadesboro.

To Camp Sheridan, Ala., Capts. J. F. MILLER, Ashboro; H. C. MENZIES, Hickory.

To Fort Oglethorpe for instruction, Capt. C. P. BOOLES, Wilmington; Lieuts. R. W. S. PEGRAM, Canton; T. W. CARMICHAEL, Rowland.

To Hoboken, N. J., Lieut. L. H. SWINDELL, Swan Quarter.

North Dakota

To Hoboken, N. J., Capt. T. P. MARTIN, Mayville.

Ohio

To Camp Custer, Mich., Lieuts. M. L. BATTLES, Norwalk; O. D. TATJE, Portsmouth.

To Camp Grant, Ill., Lieuts. C. H. HEFFRON, Metamora; S. B. HAYS, Newcomerstown.

To Camp Jackson, S. C., base hospital, Capt. M. MILLIKIN, Hamilton.

To Camp Kearney, Calif., Lieut. C. S. AMIDON, Cincinnati. Base hospital, Lieut. E. W. GARRETT, Cleveland.

To Camp Lee, Va., Lieut. G. W. CLARK, Maumee.

To Camp Sherman, Ohio, Capt. H. C. LISLE, Springfield; Lieuts. A. W. HOLMAN, Circleville; E. E. FURNAS, Englewood; C. I. KUNTZ, Fremont; A. A. BRINDLEY, Port Clinton; W. H. HARTUNG, Toledo; W. F. SEALOVER, Zanesville.

To Fort Oglethorpe for instruction, Capts. F. B. LIVERMORE, Barberton; B. C. WILLIS, Cincinnati; E. R. BONDY, W. E. GERNHARD, I. E. SEWARD, Cleveland; C. W. GINN, G. H. WELLBROCK, Dayton; E. O. BAUER, Middletown; J. P. DeWITT, New Canton; C. H. HARRIS, New Paris; E. W. FISHER, Portage; R. L. JOHNSON, Wadsworth; W. W. RYALL, Youngstown; Lieuts. D. W. FELLERS, Bloomville; D. A. PERRIN, Chillicothe; T. HULICK, Cincinnati; G. S. DUNBAR, J. R. THOMPSON, Cleveland; C. B. TANNER, Columbus; J. I. NISBET, Eaton; F. R. TROUT, Jamestown; H. SILVER, Middletown; J. C. FOUNTAIN, Somerset; E. MILLER, Springfield; R. B. LEISTER, Tiffin; J. R. DAVIS, D. KAHN, Toledo; L. E. PHIPPS, Youngstown.

To Hoboken, N. J., Lieuts. E. W. SCHLEMMER, Cincinnati; L. O. SAUR, Norwood.

To New York, Neurological Institute, for instruction, Capt. M. E. BLAHD, Cleveland.

Oklahoma

To Camp Lee, Va., Lieut. J. M. ELLIS, Wapanucka.

To Camp MacArthur, Texas, Lieut. J. DAVIS, Gariand.

To Camp Sheridan, Ala., Capts. S. J. FRYER, Muskogee; T. C. BURNS, Oklahoma; Lieuts. J. H. KAY, Durant; R. WOLFE, Hugo.

To Cleveland, Ohio, Lakeside Laboratory, Lieut. M. P. SPRINGER, Tulsa.

To Fort Oglethorpe for instruction, Capt. J. M. GORDON, Weatherford; Lieut. S. E. GAYMAN, Tryon.

To Fort Riley for instruction, Capt. K. L. COLLEY, Bigheart; Lieuts. W. P. RUDELL, Altus; J. A. NELSON, Centrahoma; A. W. NUNNERY, Granite; W. A. THOMPSON, Kusa.

Oregon

To Fort Riley for instruction, Lieut. H. H. HUGHES, Gresham.

Pennsylvania

To Camp Hancock, Ga., base hospital, Lieut. T. G. AIKEN, Berwyn.

To Camp Sevier, S. C., base hospital, Lieut. G. B. DUNKLE, Washington.

To Camp Sheridan, Ala., base hospital, Capt. R. F. RIDPATH, Philadelphia.

To Fort Oglethorpe for instruction, Major T. B. CARROLL, Pittsburgh; Capts. J. I. ZERBE, Franklin; J. B. JOHNSON, Ligonier; J. A. BROOKE, Philadelphia; W. C. BRYANT, V. S. GAGGIN, H. S. NICHOLSON, S. N. POOL, G. F. TUCKER, Pittsburgh; J. L. WAGNER, Reading; H. B. SUMMERVILLE, Rimersburg; W. J. SCANLAN, Shenandoah; W. L. DILLER, Springville; J. W. ROYER, Terre Hill; J. A. KNOX, F. S. ULLOM, Waynesburg; Lieuts. H. B. ROOP, Columbia; A. S. CANTOR, Dickson City; C. E. BORTNER, Hanover; J. H. KRIEDER, Harrisburg; G. N. SPROWLS, Imperial; G. W. CONRAD, H. R. MATHER, Johnstown; C. T. FARIES, Narbeth; C. CADWALLADER, Philadelphia; C. P. LEININGER, N. F. ROCK, Pittsburgh; F. J. GABLE, Reading; R. F. WEAVER, St. Clair.

To Hoboken, N. J., Lieuts. W. S. WALLACE, East Brady; C. V. HART, Harrisburg; M. M. THOMSON, Pitcairn.

To Mineola, N. Y., Hazelhurst Field, Capt. C. W. JENNINGS, Pittsburgh.

To New Haven, Conn., Yale Army Laboratory School, for instruction, Capt. H. K. CAREY, Philadelphia.

To Washington, D. C., St. Elizabeth's Hospital, for instruction, Capt. J. R. GORMLEY, Monaca.

Porto Rico

To Camp Custer, Mich., Lieut. J. A. HERNANDEX, Jayuya.

To Camp Las Casas, P. R., Lieuts. R. R. AULET, Arecibo; J. J. NOGUERAS, Cayey; T. J. RAMIREZ, Mayaguez.

Rhode Island

To Fort Oglethorpe for instruction, Lieut. P. APPLETON, Providence.

To Williamsbridge, N. Y., Lieut. C. R. DOTEN, Providence.

South Carolina

To Camp Custer, Mich., base hospital, Lieut. D. V. MYERS, Spartanburg.

To Camp Lee, Va., Capt. W. EGLESTON, Hartsville; Lieut. J. D. BEARDEN, Central.

To Fort Oglethorpe for instruction, Capts. S. B. SHERARD, Gaffney; R. M. FULLER, McCormick; Lieuts. D. H. SMITH, Glenn Springs; C. D. ROLLINS, Lake City.

To Hoboken, N. J., Lieut. H. T. SCOTT, Cowpene.

South Dakota

To Rockford, Ill., base hospital, Capt. B. T. GREEN, Brookings.

Tennessee

To Camp Lee, Va., Capt. J. K. P. BLACKBURN, Pulaski.

To Camp Sheridan, Ala., Capts. S. A. MOFFITT, Cornersville; T. W. FIELDS, Dresden.

To Fort Oglethorpe for instruction, Capts. W. L. SIMPSON, Memphis; R. W. DAKE, Nashville; Lieuts. R. K. BAKER, Eads; J. L. COOLEY, Lynchburg; C. P. MARSH, Petersburg.

To Fort Riley for instruction. Lieuts. W. W. KIMSEY, Ducktown; R. C. KIMBROUGH, Madisonville; P. H. WOOD, Memphis.

Texas

To Camp Kearney, Calif., Lieuts. W. A. BOYCE, Dallas; A. H. FORTNER, Sweetwater.

To Camp Lee, Va., Lieut. D. EDRINGTON, Avery.

To Camp MacArthur, Texas, Capt. S. M. ALEXANDER, Abilene; Lieut. J. H. CATON, Detroit.

To Camp Travis, Texas, base hospital, Lieut. W. NOBLE, Aransas Pass.

To Fort Oglethorpe for instruction, Capts. A. B. CRAIN, Belton; J. S. DAVIS, Dallas; B. F. STEVENS, El Paso; K. V. KIBBIE, Fort Worth; J. R. KIGHT, San Angelo; Lieuts. J. N. LIGHTSEY, Cotulla; J. O. ROGERS, Red Oak; C. C. SORRELLS, Royse City.

To Fort Riley for instruction, Lieut. C. A. SHAW, Pinehill.

To Fort Worth, Texas, base hospital, Lieut. R. R. ROSS, San Antonio.

Utah

To Camp Kearney, Calif., Capt. E. D. HAMMOND, Salt Lake City.

To Fort Oglethorpe for instruction, Lieut. T. C. HILL, Huntington.

Vermont

To Camp Lee, Va., Lieut. L. ABERNATHY, Bakersfield.

To Fort Oglethorpe for instruction, Capt. W. LINDSAY, Montpelier; Lieuts. W. M. HUNTINGTON, Rochester; C. P. MUNSELL, South Royalton.

Virginia

To Camp Lee, Va., Capt. K. BRADFORD, Staunton; Lieut. C. L. BRADSHAW, Falmouth.

To Camp Wheeler, Ga., base hospital, Capt. J. W. WHITE, Norfolk.

To Fort Oglethorpe for instruction, Capts. C. T. PIERCE, Litwalton; J. W. WALTERS, Lynchburg; J. H. HIDEN, Pungoteague; A. L. TYNES, Staunton; W. F. HARTMAN, Swoope; Lieuts. C. B. PRITCHETT, Danville; W. H. WHITEHEAD, Lowesville; F. O. PLUNKETT, Lynchburg; R. R. HOSKINS, Mathews; J. W. TURMAN, Richmond; W. S. SLICER, Roanoke; W. C. PETERSON, University.

To Hoboken, N. J., Lieuts. F. M. HORSLEY, Lovingston; H. C. GRANT, Norfolk.

Washington

To Camp Kearney, Calif., Lieut. R. E. AHLQUIST, Spokane.

To Camp Lewis, Wash., base hospital, Capt. E. A. LUPTON, Spokane.

To Fort Riley for instruction, Lieut. L. MOFFITT, Yakima.

To New York, Neurological Institute, for instruction, Major W. N. KELLER, Fort Steilacoom.

West Virginia

To Hoboken, N. J., Lieut. E. B. STALEY, Sherrard.

Wisconsin

To Camp Custer, Mich., Lieut. P. J. MAJERUS, Sullivan.

To Camp Lee, Va., Capt. T. E. FARRELL, Seneca.

To Camp Sherman, Ohio, Capt. J. GOMBER, Gillett.

To Fort Oglethorpe for instruction, Lieuts. O. E. A. WESTEDT, Loganville; W. J. MURPHY, Milwaukee.

To Fort Riley for instruction, Capt. E. A. KETTERER, Montford; Lieut. H. E. BURGER, Beloit.

To Fort Sheridan, Ill., Capt. T. L. HARRINGTON, Milwaukee.

To Milwaukee, Wis., as examiner, Capt. J. D. MADISON, Milwaukee.

Wyoming

To Fort Riley for instruction, Capt. O. P. HAMILTON, Sheridan.

ORDERS TO OFFICERS OF THE MEDICAL CORPS, U. S. ARMY

Alabama

To Boston, Mass., Harvard Graduate School of Medicine, for instruction, from Fort Oglethorpe, Lieut. J. R. MORGAN, Heflin.

To Camp Beauregard, La., base hospital, from Camp Shelby, Capt. J. SHAHAN, Gadsden.

To Camp McClellan, Ala., from Camp Holabird, Capt. J. M. WHITESIDE, Anniston. Evacuation hospital, from Camp Wheeler, Capt. E. M. MASON, Birmingham.

To Fort Oglethorpe for instruction, Lieut. W. F. HAMILTON, Pell City; from Fort Barrancas, Capt. F. P. PETTEY, Albany; from the Surgeon-General's Office, Capt. W. A. SELLERS, Montgomery.

To Newport News, Va., base hospital, from Camp Lee, Lieut. B. B. EDWARDS, Union Springs.

Arizona

To Fort Douglas, Utah, from Camp Cody, Lieut. G. F. MANNING, Flagstaff.

To Hampton, Va., Langley Field, from Mineola, Capt. E. W. ADAMSON, Douglas.

To Walter Reed General Hospital, D. C., from Fort Oglethorpe, Capt. C. A. THOMAS, Tucson.

Arkansas

To Rochester, Minn., Mayo Clinic, for instruction, and on completion *to his proper station,* from Jefferson Barracks, Major W. K. READ, Texarkana.

To Rockefeller Institute for instruction, from New Haven, Lieut. J. C. SIMPSON, Hamburg.

California

To Camp Fremont, Calif., as orthopedic surgeon, from San Francisco, Lieut. T. R. CUNNANE, Los Angeles. Base hospital, from San Francisco, Lieut. C. A. CRAIG, San Francisco.

To Camp Greene, N. C., evacuation hospital, from Fort Oglethorpe, Lieut. W. L. DENTON, Randsburg.

To Camp Kearney, Calif., as orthopedic surgeon, from San Francisco, Lieut. J. SWANCOTT, Los Angeles.

To Camp Logan, Texas, base hospital, Capt. I. R. BANCROFT, Los Angeles.

To Camp Pike, Ark., evacuation hospital, from Camp Fremont, Major L. P. HOWE, San Francisco.

To Camp Sheridan, Ala., evacuation hospital, from Camp Kearney, Capt. J. H. PETTIS, Fresno.

To Camp Upton, N. Y., as orthopedic surgeon, from Fort Oglethorpe, Lieut. H. H. McCOY, San Francisco.

To Camp Zachary Taylor, Ky., base hospital, from Army Medical School, Capt. T. H. T. WIGHT, Santa Monica.

To Fort Douglas, Utah, from Camp Fremont, Capt. A. L. BROWN, Riverside; from Camp Pike, Major W. C. CHIDESTER, San Mateo.

To Jefferson Barracks, Mo., base hospital, from Camp Lewis, Capts. H. W. SEAGER, Los Angeles; N. C. BISSELL, Modesto; Lieut. J. C. WILLIAMS, Fresno.

To report to the commanding general, Philippine Department, from Camp Lewis, Lieut. G. P. HALL, Sunnyvale.

To San Francisco, Calif., evacuation hospital, from Camp Fremont, Capt. W. L. ADAMS, Fresno. For instruction, and on completion *to his proper station,* from Camp Fremont, Capt. T. R. McNAB, Los Angeles; from Camp Kearney, Lieuts. B. W. JOHNSON, Dos Palos; G. T. BOYD, Los Angeles; R. G. VAN NUYS, Oakland; W. F. PRIESTLEY, Stockton.

Canal Zone

To report to the commanding general, Panama Canal Department, Lieut. W. W. COOK, Christobal.

Colorado

To Boston, Mass., Harvard Graduate School of Medicine, for instruction, from Camp Dodge, Lieut. W. H. HALLEY, Pueblo.

To Camp Dodge, Iowa, evacuation hospital, from Camp Logan, Lieut. R. A. PAINE, Denver.

To Camp Lewis, Wash., from Camp Kearney, Major A. J. MARKLEY, Denver. Base hospital, Capt. F. R. SPENCER, Boulder.

To Camp Wadsworth, S. C., base hospital, from Army Medical School, Capt. P. HILLKOWITZ, Denver.

To Fort Oglethorpe for instruction, Capt. C. D. McKENZIE, Denver.

To report to the commanding general, Philippine Department, from Camp Cody, Lieut. N. H. KNOCH, Denver.

Connecticut

To Camp Meade, Md., Lieut. M. J. FOLEY, Bridgeport.

To Camp Sevier, S. C., from Camp Lee, Capt. N. L. DEMING, Litchfield.

To Washington, D. C., from duty as medical aide to the governor of Connecticut, Capt. D. C. BROWN, Danbury.

District of Columbia

To Camp Greene, S. C., to examine the command for nervous and mental diseases, from Camp Devens, Lieut. C. B. COVEY, Washington.

To Fort Ontario, N. Y., base hospital, from Army Medical School, Lieut.-Col. G. H. SCOTT, Washington.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to his proper station*, from Washington, Major R. Y. SULLIVAN, Washington.

To Walter Reed General Hospital, D. C., from Jeffersonville, Ind., Capt. W. J. MANNING, Washington.

To Washington, D. C., for instructions and on completion *to New Haven, Conn.*, Yale Army Laboratory School, from Southern Department, Major J. S. SIMMONS, Washington.

To West Point, Ky., as camp surgeon, from Southern Department, Major A. S. WILDE, Washington.

Florida

To Camp Travis, Texas, from Douglas, Ariz., Lieut. B. H. PALMER, Tampa.

To Fort McPherson, Ga., Lieut. C. R. MARNEY, Tampa.

To Mineola, N. Y., Hazelhurst Field, for instruction, from Fort Oglethorpe, Lieut. M. A. LISCHKOFF, Pensacola.

To Washington D. C., Surgeon-General's Office, from Camp Hancock, Capt. R. E. BALDWIN, Tampa.

Georgia

To Camp A. A. Humphreys, Va., Lieut. H. J. CARSWELL, Waycross.

To Camp Devens, Mass., as orthopedic surgeon, from Fort Oglethorpe, Lieut. J. D. BLACKBURN, Atlanta.

To Camp Gordon, Ga., Capt. W. MATHEWS, Quitman.

To Camp Lee, Va., Lieut. T. M. VORBRINK, Savannah.

To Camp Sevier, S. C., Lieut. R. M. AVERY, Chipley; from Fort McPherson, Major G. D. HEATH, JR., Fort McPherson. Base hospital, from Fort Oglethorpe, Lieut. J. E. MORRISON, Savannah.

To Camp Sheridan, Ala., from Fort McPherson, Capt. H. J. ROSENBERG, Atlanta.

To Camp Wadsworth, S. C., Lieut. W. E. SIMMONS, Metter.

To Camp Wheeler, Ga., base hospital, from Fort Oglethorpe, Lieut. A. SMITH, Atlanta.

To Fort Oglethorpe for instruction, Capts. H. B. ALLEN, L. F. GRUBBS, Americus.

To Hoboken, N. J., Major C. L. CHASE, Chickamauga.

To report to the commanding general, Eastern Department, Lieut. J. C. HARRIS, Collins.

Hawaii

To report to the commanding general, Hawaiian Department, Lieut. H. L. ROSS, Kealskekua.

Idaho

To San Francisco, Calif., for instruction, and on completion *to his* proper station, from Camp Lewis, W. S. TITUS, Boise.

To Syracuse, N. Y., from Fort Sill, Lieut. C. W. WILLIAMS, Laclede.

Illinois

To Boston, Mass., Harvard Graduate School of Medicine, for instruction, from Fort Oglethorpe, Capt. W. E. SHACKLETON, Chicago.

To Camp Beauregard, La., base hospital, from Camp Jackson, Capt. O. T. SCHULTZ, Chicago.

To Camp Custer, Mich., from Central Department, Capt. W. F. GRAYSON, Granite City; Lieut. R. T. FARLEY, Chicago.

To Camp Devens, Mass., as orthopedic surgeon, from Fort Oglethorpe, Lieut. P. B. GREENBURG, Chicago.

To Camp Grant, Ill., base hospital, Lieut. F. H. FALLS, Chicago.

To Camp Jackson, S. C., evacuation hospital, from Camp Meade, Capt. F. W. BRODERICK, Sterling.

To Camp Joseph E. Johnston, Fla., base hospital, from Fort Oglethorpe, Lieut. G. L. McWHORTER, Chicago.

To Camp Las Casas, P. R., from Camp Lee, Lieut. H. S. BLESSE, South Chicago.

To Camp Lewis, Wash., as orthopedic surgeon, from San Francisco, Lieut. F. J. SCHICK Chicago. Base hospital, from Portland, Lieut. O. H. CHRISTOFFERSEN, Chicago.

To Camp Logan, Texas, base hospital, from Fort Oglethorpe, Capt. H. A. WARE, Chicago.

To Camp McClellan, Ala., base hospital, from Fort Oglethorpe, Lieut. H. F. MOORE, Rockford. Evacuation hospital, from Cape May, Lieut. A. A. LEBEAU, Chicago.

To Camp Pike, Ark., from Fort Riley, Lieut. J. C. SMALL, Chicago.

To Camp Shelby, Miss., base hospital, from Fort Oglethorpe, Lieut. A. PEARMAN, Rockford.

To Camp Sheridan, Ala., evacuation hospital, from Baltimore, Major E. A. GRAHAM, Chicago.

To Camp Sherman, Ohio, as tuberculosis examiner, from New Haven, Lieut. G. K. FENN, Chicago Heights.

To Camp Travis, Texas, from Southern Department, Lieut. F. A. BLESSE, Chicago.

To Camp Upton, N. Y., as orthopedic surgeon, from Fort Oglethorpe, Lieut. G. L. VENABLE, Chicago.

To Camp Wheeler, Ga., base hospital, from Army Medical School, Lieut. F. C. CALDWELL, Chicago.

To Camp Zachary Taylor, Ky., base hospital, from Army Medical School, Capt. W. G. BAIN, Springfield.

To Fort Oglethorpe for instruction, Capt. T. H. PAGE, Peoria; Lieuts. D. N. EISENDRATH, Chicago; G. W. HUBER, Tuscola.

To Fort Riley, as tuberculosis examiner, from New Haven, Lieut. R. W. HARRELL, Chicago.

To Hoboken, N. J., from the Surgeon-General's Office, Lieut. W. R. WHITLEY, Chicago.

To Jefferson Barracks, Mo., from Camp Fremont, Major J. W. TURNER, Pleasant Hill. Base hospital, from Camp McClellan, Capt. W. H. MALEY, Galesburg.

To Lakewood, N. J., Lieuts. O. C. HYSLOP, A. SUMMERS, Chicago.

To report to the commanding general, Philippine Department, from Camp MacArthur, Capt. A. H. WEIS, Chicago.

To Rochester, Minn., Mayo Clinic, for instruction, and on completion *to his proper station*, from Camp Grant, Capt. C. C. CLARK, Chicago.

To San Antonio, Texas, Kelly Field, to examine the command for nervous and mental diseases, from Camp Cody, Lieut. L. M. OCHS, East Moline.

To Washington, D. C., for instructions, and on completion *to Newport News, Va.*, from Hoboken, Capt. V. M. DALY, Pontiac. St. Elizabeth's Hospital, for intensive training, from Fort Oglethorpe, Lieut. H. M. ENGLISH, Marshall. Surgeon-General's Office, from Camp Dodge, Major J. L. MILLER, Chicago.

Indiana

To Azalea, N. C., from Camp Wadsworth, Lieut. A. M. WINKLEPLECK, Alfordsville.

To Camp Grant, Ill., from Fort Benjamin Harrison, Major T. C. STUNKARD, Terre Haute.

To Camp Hancock, Ga., base hospital, from Fort Oglethorpe, Capt. C. C. DUBOIS, Warsaw.

To Camp Sevier, S. C., base hospital, from Fort Oglethorpe, Lieut. O. O. MELTON, Hammond.

To Camp Sheridan, Ala., base hospital, from Fort Oglethorpe, Capt. H. A. Ray, Fort Wayne.

To Camp Wheeler, Ga., base hospital, from Fort Oglethorpe, Capt. D. S. WIGGINS, New Castle.

To Camp Zachary Taylor, Ky., from Camp Grant, Capt. J. R. DILLINGER, French Lick.

To Fort Oglethorpe for instruction, Capt. C. E. ORDERS, Indianapolis; J. M. WALLACE, Ridgeville; G. W. ANGLIN, Warsaw; Lieuts. H. C. FRICK, Evansville; C. S. AUBLE, Indianapolis.

To Garden City, N. Y., from Lee Hall, Va., Lieut. G. W. KIMBALL, La Porte.

To Hoboken, N. J., Lieut. J. M. QUICK, Muncie.

To Lonoke, Ark., Eberts Field, from Lake Charles, La., Capt. D. D. JOHNSTON, Fort Wayne.

Iowa

To Camp A. A. Humphreys, Va., Lieut. B. L. TREY, Parkersburg.

To Camp Jackson, S. C., evacuation hospital, from Fort Oglethorpe, Lieut. W. J. FOSTER, Wellman.

To Camp Travis, Texas, from Southern Department, Lieut. R. V. HENRY, Hedrick.

To Fort Oglethorpe for instruction, Lieut. M. J. McVAY, Lake City.

To Fort Riley, as tuberculosis examiner, from New Haven, Capt. J. T. PADGHAM, Grinnell.

To Rochester, Minn., Mayo Clinic, for instruction, and on completion, *to his proper station*, from Camp Dodge, Capt. C. S. JAMES, Centerville; from Camp Grant, Capt. I. E. NERVIG, Sioux City; from Camp Zachary Taylor, Lieut. A. E. ACHER; Fort Dodge.

To Rockefeller Institute for instruction, from New Haven, Lieut. M. T. MORTON, Iowa City.

To West Point, Ky., Lieut. G. GOULD, Iowa City.

To report to the commanding general, Philippine Department, from Camp MacArthur, Lieuts. G. BRAUNLICH, Davenport; A. D. SMITH, Mason City.

Kansas

To Camp Custer, Mich., base hospital, from Fort Oglethorpe, Capt. L. C. LEWIS, Kansas City.

To Camp Gordon, Ga., as orthopedic surgeon, from Fort Oglethorpe, Lieut. E. D. RODDA, Arma.

To Rochester, Minn., Mayo Clinic, for instruction, and on completion *to his proper station*, from Fort Riley, Capt. C. J. McGEE, Leavenworth.

To Walter Reed General Hospital, D. C., from Fort Oglethorpe, Capt. J. W. FAUST, Kansas City.

Kentucky

To Camp MacArthur, Texas, base hospital, from Fort Oglethorpe, Lieut. J. S. McGINNIS, Lexington.

To Camp Zachary Taylor, Ky., Lieut. E. STUMBO, Smalley.

To Fort Caswell, N. C., from duty as a private, Lieut. O. N. BERGEMEYER, Dayton.

Louisiana

To Camp Lee, Va., base hospital, from Richmond, Major O. L. POTHIER, New Orleans.

To Fort Benjamin Harrison, as post surgeon, from Camp Wadsworth, Major R. HUNT, Shreveport.

To Fort Oglethorpe, evacuation hospital, from Camp Dodge, Lieut. P. E. WERLEIN, New Orleans. For instruction, Capt. W. B. CHAMBERLIN, Baton Rouge; Lieut. J. S. DUNN, New Orleans.

To New Orleans, La., with examining board, from the Surgeon-General's Office, Major I. DYER, New Orleans.

Maine

To Boston, Mass., Harvard Graduate School of Medicine, for instruction, from Fort Oglethorpe, Lieut. L. F. CARTER, Bangor.

To Camp Zachary Taylor, Ky., base hospital, from Fort Oglethorpe, Lieut. L. H. TRUFANT, Norway.

To Hoboken, N. J., from Camp Upton, Capt. A. H. LITTLE, Portland.

To Mineola, N. Y., Hazelhurst Field from Buffalo. Capt. W. E. WHITNEY, Bangor.

Maryland

To Camp A. A. Humphreys, Va., as tuberculosis examiner, from Camp Upton, Lieut. S. NEWMAN, Baltimore.

To Camp Greene, N. C., evacuation hospital, from Camp Grant, Lieut. J. J. CHISOLM, Baltimore.

To Camp Meade, Md., base hospital, from Camp Lee, Lieut. R. K. FOXWELL, Cambridge.

To Camp Pike, Ark., from Fort Riley, Lieut. T. M. RIVERS, Baltimore.

To Camp Sevier, S. C., base hospital, from Army Medical School, Lieut. R. M. HALL, Baltimore.

To Camp Shelby, Miss., from Army Medical School, Lieut. R. S. CUNNINGHAM, Baltimore; from Camp McClellan, Major H. GROSS, Baltimore.

To Camp Zachary Taylor, Ky., from Camp Hancock, Capt. T. R. PAYNE, Corbett.

To Fort Oglethorpe for instruction, Major R. P. BAY, Baltimore; from Camp Wadsworth, Lieut. V. H. CONDON, Baltimore.

To New York City, Neurological Institute, for instruction, and on completion *to his proper station*, from Camp Sheridan, Capt. G. O. SHARRETT, Cumberland.

To Washington, D. C., St. Elizabeth's Hospital, from Camp Meade, Capt. D. D. V. STUART, Jr., Baltimore; from Fort Oglethorpe, Lieut. W. C. CHANEY, Chaney.

The following order has been revoked: *To Camp Meade, Md.*, base hospital, Capt. S. McCLEARY, Baltimore.

Massachusetts

To Boston, Mass., from duty as a contract surgeon, Lieut. G. H. POIRIER, Boston. Harvard Graduate School of Medicine, for instruction, from Fort Oglethorpe, Lieut. D. F. MURPHY, Beverly. *To give orthopedic instruction*, Major K. EMERSON, Worcester.

To Camp Devens, Mass., base hospital, Major S. J. MIXTER, Boston.

To Camp Forrest, Ga., to examine drafted men for nervous and mental diseases, and on completion *to Fort McPherson, Ga.*, from Fort Oglethorpe, Lieut. D. B. COLEMAN, Wellesley.

To Camp Greene, N. C., as camp psychiatrist, from Camp Sheridan, Capt. H. L. STICK, Baldwinsville. Evacuation hospital, from Camp Gordon, Capt. S. C. COX, Holyoke.

To Camp McClellan, Ala., from Hot Springs, N. C., Lieut. C. S. NEISTADT, Fall River.

To Camp Shelby, Miss., base hospital, from Fort Oglethorpe, Lieut. H. S. POMEROY, Peabody.

To Camp Sheridan, Ala., evacuation hospital, from Camp Devens, Lieut. W. K. TURNER, New Bedford.

To Camp Sherman, Ohio, to examine the command for nervous and mental diseases, from New York, Lieut. G. VAN N. DEARBORN, Cambridge.

To Camp Travis, Texas, to examine the command for nervous and mental diseases, from Fort Oglethorpe, Capt. W. Y. SEYMOUR, State Farm.

To Camp Wadsworth, S. C., base hospital, from Army Medical School, Lieut. L. C. HAVENS, Cambridge.

To Colonia, N. J., from Walter Reed General Hospital, Lieut. E. KING, Boston.

To Fort Douglas, Utah, from Camp Lewis, Lieut. R. L. READLES, Coffeeville.

To Fort Oglethorpe, evacuation hospital, Major H. T. HUTCHINS, Boston. For instruction, Capt. T. W. MURPHY, Lawrence; Lieuts. G. L. CHAFFIN, Boston; J. J. HILTON, Lawrence; S. C. EVELETH, Marblehead; E. D. RICHMOND, Reading.

To Fort Riley, base hospital, from Boston, Major M. H. ROGERS, Boston.

To Garden City, N. Y., Lieuts. B. D. WETHERELL, Holyoke; J. J. TOPHAM, Lowell.

To Jefferson Barracks, Mo., base hospital, from Camp Devens, Major D. F. JONES, Boston.

To Newport News, Va., as orthopedic surgeon, from Fort Oglethorpe, Lieut. M. E. SIMMONS, Boston.

To New York, Neurological Institute, for instruction, from Camp Meade, Capt. H. E. MAYNARD, Winchester.

To Rockefeller Institute for instruction, from New Haven, Lieut. G. L. BUNNELL, Foxboro.

To Walter Reed General Hospital, D. C., from Fort Oglethorpe, Lieut. A. F. SARGENT, Boston.

To Williamsbridge, N. Y., from Camp Dix, Lieut. F. J. QUIST, Worcester.

Michigan

To Boston, Mass., Harvard Graduate School of Medicine, for instruction, from Camp Devens, Lieut. H. L. KEIM, Ann Arbor; from Fort Oglethorpe, Lieut. C. E. TREUSDELL, Denton.

To Camp Custer, Mich., base hospital, Capt. C. N. GAUSS, Palo.

To Camp Fremont, Calif., from Camp Kearney, Lieut. H. B. McCRORY, Birch Run.

To Camp Greene, N. C., evacuation hospital, from West Point, Capt. A. R. McKINNEY, Saginaw.

To Camp Hancock, Ga., base hospital, from Fort Oglethorpe, Lieut. L. H. TOWER, Battle Creek.

To Camp McClellan, Ala., base hospital, from Fort Oglethorpe, Capt. W. T. PARKER, Corunna.

To Camp Sherman, Ohio, base hospital, Capt. F. J. SLADEN, Detroit.

To Camp Upton, N. Y., base hospital, Capt. T. S. LANGFORD, Ann Arbor.

To Fort Oglethorpe, from Camp Meade, Major N. B. FOSTER, Ann Arbor.

To Hoboken, N. J., from Camp Sherman, Lieut. C. W. OLSON, Escanaba.

To Plattsburg Barracks, N. Y., from Fort Onatrio, Lieut. H. A. REYE, Detroit.

To Rochester, Minn., Mayo Clinic, for instruction, and on completion *to Camp Grant, Ill.*, base hospital, from Fort Oglethorpe, Capt. R. J. E. ODEN, Cadillac.

Minnesota

To Camp Custer, Mich., Lieut. F. B. MORRISSEY, St. Paul; from Camp Dodge, Capt. W. H. EATON, Duluth.

To Camp Fremont, Calif., from Camp Kearney, Lieut. N. P. ANDERSON, Dunnell.

To Camp John Wise, Texas, from Camp Kelly, Lieut. S. R. FRAKER, Cass Lake.

To Camp Pike, Ark., from Fort Riley, Capt. F. G. BLAKE, Minneapolis.

To Cape May, N. J., from Ann Arbor, Major J. F. CORBETT, Minneapolis.

To Fort Sam Houston, Texas, base hospital, from Fort Oglethorpe, Major A. R. COLVIN, St. Paul.

To New Haven, Conn., Yale Army Laboratory School, from Army Medical School, Lieuts. W. J. EKLUND, Duluth; W. J. CARSON, St. Paul.

To Newport News, Va., base hospital, from Hoboken, Lieut. B. N. SOROSE, Detroit.

To New York, Neurological Institute, for instruction, Capt. H. A. BEAUDOUX, St. Paul.

To Rochester, Minn., Mayo Clinic, for instruction, and on completion *to his proper station*, from Camp Dodge, Capt. H. P. BACON, Milaca.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to his proper station*, from Walter Reed General Hospital, Capt. E. M. JONES, St. Paul.

Mississippi

To Camp Beauregard, La., base hospital, Capt. G. W. MONTGOMERY, Louin.

To Camp Travis, Texas, from Camp Head Springs, Lieut. C. M. SPECK, New Albany.

To Fort Ontario, N. Y., to examine the command for nervous and mental diseases, Capt. J. H. FOX, Jackson.

To Fort Riley for instruction, Lieut. J. M. FOX, Jackson.

To report to the commanding general, Philippine Department, from Camp Bowie, Lieut. H. M. SMITH, Natchez.

The following order has been revoked: *To Camp McClellan, Ala.*, base hospital, from Fort Oglethorpe, Lieut. W. C. NORRIS, De Soto.

Missouri

To Arcadia, Fla., Carlstrom Field, as flight surgeon, from Hampton, Va., Capt. F. C. SIMON, St. Louis.

To Azalea, N. C., from Camp Bowie, Lieut. A. W. KOESSEL, St. Louis.

To Camp Abraham Eustis, Va., camp hospital, from Army Medical School, Lieut. O. F. BRADFORD, Columbia.

To Camp Beauregard, La., base hospital, from Fort Oglethorpe, Lieut. P. A. BRICKEY, St. Louis.

To Camp Greene, N. C., evacuation hospital, from New York, Lieut. C. E. HYNDMAN, St. Louis.

To Camp Jackson, S. C., evacuation hospital, from Fort Oglethorpe, Lieut. S. W. FAIR, Belton.

To Camp John Wise, Texas, from Camp Kelly, Lieut. P. C. DAVIS, Moberly.

To Camp Joseph E. Johnston, Fla., base hospital, Lieut. C. C. KLEINSHMIDT, St. Louis.

To Camp MacArthur, Texas, base hospital, from Fort Oglethorpe, Capt. G. A. MELLIES, St. Louis.

To Camp Pike, Ark., evacuation hospital, from Camp Bowie, Lieut. A. H. CLEVELAND, St. Louis; from Camp Kearney, Capt. R. D. STREETOR, Moberly; from Camp MacArthur, Capt. F. E. JACOBI, St. Louis; from Fort Riley, Major E. L. OPIE, St. Louis.

To Camp Upton, N. Y., as orthopedic surgeon, from Fort Oglethorpe, Lieut. N. ROSENBERG, Kansas City.

To Fort Oglethorpe as assistant instructor, Capt. W. E. SAUER, St. Louis. For instruction, Capts. P. F. COLE, Ewing; M. G. GORIN, St. Louis.

To Fort Riley, base hospital, from Fort Sill, Lieut. J. H. ARMSTRONG, Glendale. For instruction, Lieut. H. N. De MENIL, St. Louis.

To Fort Wayne, Mich., Capt. D. H. BOKHOF, Kansas City; Lieut. R. E. GERSTENKERN, Kansas City.

To Hoboken, N. J., evacuation hospital, from Camp Wadsworth, Lieut. Q. U. NEWELL, St. Louis.

To Jefferson Barracks, Mo., base hospital, from Camp Dodge, Lieut. E. C. GRIM, Kirksville; from Fort Oglethorpe, Capt. M. W. MEYER, Columbia.

To Mineola, N. Y., Hazelhurst Field, from Dallas, Lieut. S. E. ROBERTS, Kansas City. For instruction, from St. Louis, Lieut. H. W. LYMAN, St. Louis.

To New Haven, Conn., Yale Army Laboratory School, from Army Medical School, Capt. R. BUHMAN, St. Louis.

To report to the commanding general, Philippine Department, from Camp Lewis, Lieut. A. J. SMITH, Boonville; from Camp Logan, J. B. WHITE, St. Louis.

To Rochester, Minn., Mayo Clinic, for instruction, and on completion *to their proper stations*, from Camp Custer, Capts. C. L. COOPER, Kansas City; B. A. DUMBAULD, Webb City.

The following order has been revoked: *To Camp Pike, Ark.*, from Fort Riley, Lieut. B. H. EMERSON, Stockton.

Montana

To Camp Custer, Mich., from Central Department, Major F. J. ADAMS, Great Falls.

To Jefferson Barracks, Mo., base hospital, from Camp Lewis, Lieut. L. P. GAERTNER, Three Forks.

To Rockefeller Institute for instruction, from New Haven, Lieut. J. D. HOBSON, Missoula.

To San Francisco, Calif., for instruction, and on completion *to his proper station*, from Camp Lewis, Capt. E. F. DODDS, Missoula.

To report to the commanding general, Philippine Department, from Camp Kearney, Lieut. W. I. FIREY, Roundup.

Nebraska

To Camp Devens, Mass., base hospital, from Syracuse, N. Y., Capt. J. A. HENSKE, Omaha.

To Camp Meigs, Wash., for instruction and on completion *to Camp Meade, Md.*, from Surgeon-General's Office, Capt. L. CRUMMER, Omaha.

To Camp Sherman, Ohio, as tuberculosis examiner, from New Haven, Capt. L. S. ROBINSON, Kearney.

To Camp Wheeler, Ga., base hospital, from Fort Oglethorpe, Lieut. J. S. McAVIN, Omaha.

To Fort Riley, as tuberculosis examiner, from New Haven, Lieut. G. S. REEDER, Fremont.

To Washington, D. C., St. Elizabeth's Hospital, for instruction, from Camp Wadsworth, Capt. S. J. STEWART, Hastings.

Nevada

To Camp Fremont, Calif., Capt. J. R. CUNNINGHAM, Tonopah.

To San Francisco, Calif., for instruction, and on completion *to his proper station*, from Camp Kearney, Capt. E. K. SMITH, Lovelock.

New Hampshire

To Colonia, N. J., from Walter Reed General Hospital, Capt. F. S. TOWLE, Portsmouth.

To Fort Oglethorpe for instruction, Capt. F. M. N. ROBERTSON, Bristol.

The following order has been revoked: *To Camp John Wise, Texas*, from Camp Kelly, Capt. D. R. CHASE, Lebanon.

New Jersey

To Camp Custer, Mich., base hospital, from Rockefeller Institute, Lieut. A. J. NEWMAN, Jersey City.

To Camp Dodge, Iowa, from Hoboken, Lieut. J. L. WILSON, Jersey City.

To Camp Gordon, Ga., as orthopedic surgeon, Lieut. D. A. CURTIS, Paterson.

To Camp Hancock, Ga., base hospital, from Fort Oglethorpe, Capt. A. S. HARDEN, Newark.

To Camp Jackson, S. C., base hospital, from Fort Oglethorpe, Major C. E. SUTPHEN, Newark. Evacuation hospital, from Camp McClellan, Capt. H. D. BELLIS, Trenton.

To Colonia, N. J., from Camp Dix, Lieut. C. BROWNE, Princeton.

To Fort Oglethorpe for instruction, from Camp Upton, Lieut. L. D. WHITNEY, Belleville.

To Mount Clement, Mich., Selfridge Field, from Mineola, Lieut. S. Z. ORGEL, Hackensack.

To San Antonio, Texas, Kelly Field, *to examine the command* for mental and nervous disease, from Montgomery, Lieut. M. DOBRIN, Montclair.

New Mexico

To Camp Kelly, Texas, from Mineola, Capt. W. MacLAKE, Silver City.

New York

To Camp A. A. Humphreys, Va., Capt. W. G. BAETZ, Woodhaven. As tuberculosis examiner, from Camp Upton, Lieut. A. C. ABBOTT, Syracuse.

To Camp Dix, N. J., Capt. H. G. GERMER, Canastota; from Fort Oglethorpe, Lieut. J. L. LINN, Brooklyn.

To Camp Gordon, Ga., base hospital, from Camp Lee, Lieut. H. BAKWIN, New York.

To Camp Greene, N. C., evacuation hospital, from Camp Upton, Lieut. J. L. WOZNIAK, Schenectady.

To Camp Hancock, Ga., base hospital, from Army Medical School, Lieut. R. M. FERRY, New York.

To Camp Jackson, S. C., from Williamsbridge, Capt. H. M. WEED, Buffalo.

To Camp Joseph E. Johnston, Fla., base hospital, from Fort Oglethorpe, Lieut. A. A. J. JOHNSON, Brooklyn.

To Camp Lee, Va., from Fort Slocum, Major I. A. ALLEN, Ludlowville. Base hospital, from Fort Oglethorpe, Lieut. N. C. MARVEL, New York.

To Camp Pike, Ark., evacuation hospital, from Fort Ontario, Major M. BODENHEIMER, New York; from New York, Lieut. J. GOTTESMAN, New York.

To Camp Sheridan, Ala., as division psychiatrist, from Camp Gordon, Capt. L. M. WILBER, Jasper. Base hospital, from Fort Oglethorpe, Lieut. T. J. SULLIVAN, Brooklyn. Evacuation hospital, from Biltmore, Capt. H. C. W. SCHULTZ-DE BRUN, New York.

To Camp Sherman, Ohio, base hospital, from Camp Wheeler, Lieut. G. W. WHEELER, New York.

To Camp Wadsworth, S. C., as orthopedic surgeon, from Fort Oglethorpe, Lieut. J. C. O'NEILL, New York.

To Camp Wheeler, Ga., from Rockefeller Institute, Lieut. S. H. CURTIS, Troy. From the Surgeon-General's Office, Maor R. L. CECIL, New York. Base hospital, from Fort Oglethorpe, Lieuts. F. C. KELLER, G. F. SCUDDER, New York.

To Fort Benjamin Harrison, base hospital, from Camp Dix, Capt. F. G. SCHAIBLE, New York; from Camp Grant, Lieut. W. L. McCANTY, Buffalo.

To Fort Douglas, Ariz., from Camp Travis, Capt. D. S. CHILDS, Syracuse.

[illegible] RICE, New York.

To Fort [illegible], from Camp Meade, Lieut. F. P. SCH[illegible], New York.

To Fort [illegible] for instruction, Lieuts. A. B. TAYLOR, [illegible]

To Fort Sheridan, Ill., base hospital, from Camp McClellan, Capt. H. E. MELENEY, Brooklyn.

To Fort Snelling, Minn., base hospital, from Camp Devens, Lieut. J. A. WENTWORTH, Clifton Springs.

To Hoboken, N. J., from Walter Reed General Hospital, Capt. R. L. J. KEMEL, New York. Evacuation hospital, from Army Medical School, Lieuts. W. H. JONES, J. P. LaDUCA, Buffalo; from Camp Crane, Lieut. H. D. MacFARLAND, Westernville.

To Lakewood, N. J., Lieut. A. TOWBIN, New York.

To New Haven, Conn., Lieut. J. KAUNITZ, New York. Yale Army Laboratory School, from Army Medical School, Lieut. J. L. MANGANO, Buffalo.

To Newport News, Va., as orthopedic surgeon, from Fort Oglethorpe, Lieut. M. H. NEWTON, Ilion.

To report to the commanding general, Philippine Department, from Camp Cody, Lieut. G. B. WALLACE, New York.

To Rockefeller Institute for instruction, from New Haven, Lieuts. D. JUNG, Buffalo; D. S. DOOMAN, C. H. HOCHMAN, New York. For instruction in the treatment of infected wounds, and on completion *to Fort Oglethorpe* for instruction, Lieut. R. V. FUNSTON, New York.

To Williamsbridge, N. Y., Capt. C. C. JONES, New York; from Camp Upton, Lieut. M. J. LYNCH, New York.

North Carolina

To Azalea, N. C., from New Haven, Capt. B. K. HAYS, Oxford.

To Camp Abraham Eustis, Va., as sanitary inspector, from Camp Greene, Capt. D. C. ABSHER, Mount Airy.

To Camp Beauregard, La., base hospital, from Fort Oglethorpe, Lieut. G. E. BOWDOIN, Wilmington.

To Camp Logan, Texas, as tuberculosis examiner, from New Haven, Lieut. W. T. LONG, Roxboro.

To Camp Newton D. Baker, Texas, base hospital, from Camp McClellan, Lieut. H. RAY, Raleigh.

To Fort Oglethorpe for instruction, Lieut. R. B. WILKINS, Raeford.

North Dakota

To Fort Douglas, Utah, from Camp Lewis, Lieut. W. ANDERSON, Grand Forks.

To Rochester, Minn., Mayo Clinic, for instruction, and on completion *to his proper station*, from Camp Grant, Lieut. W. H. WITHERSTINE, Grand Forks.

Ohio

To Camp A. A. Humphreys, Va., Capt. F. J. WOOD, Lieut. O. H. RIEMENSCHNEIDER, Cleveland.

To Camp Crane, Pa., base hospital, from Rockefeller Institute, Lieut. S. H. MILLER, Marble Cliff.

To Camp Pike, Ark., from Fort Riley, Major A. W. FREEMAN, Columbus.

To Camp Sheridan, Ala., evacuation hospital, from Camp Zachary Taylor, Lieut. G. A. GORSUCH, Bowling Green.

To Camp Sherman, Ohio, base hospital, from New Haven, Major P. GATH, Cincinnati.

To Colonia, N. J., from Camp Lee, Lieut. H. S. SHAMANSKY, Cincinnati.

To Fairfield, Ohio, Wilbur Wright Field, from Columbus, Capt. A. H. SEEDS, Columbus.

To Fort Oglethorpe for instruction, Lieuts. W. R. KELLER, Canal Dover; N. J. SEYBOLD, Toledo.

To Fort Sam Houston, Camp Travis and *San Antonio, Texas*, from Camp Logan, Lieut. W. R. CHYNOWETH, Dayton.

To Hoboken, N. J., base hospital, from Camp Devens, Lieut. A. B. BROWER, Dayton.

To Jefferson Barracks, Mo., base hospital, from Camp Fremont, Capt. A. M. PAINTER, Youngstown.

To Williamsbridge, N. Y., from Camp Crane, Lieut. J. A. MELLON, Columbiana.

Oklahoma

To Camp Dodge, Ark., base hospital, Lieut. H. W. DOTY, Watonga.

To Camp Joseph E. Johnston, Fla., base hospital, from Fort Oglethorpe, Capt. B. LOVELADY, Guthrie.

To Camp McClellan, Ala., base hospital, from Camp Sherman, Lieut. J. W. NIEWEG, Duncan.

To Camp Pike, Ark., evacuation hospital, from Camp Bowie, Lieut. O. R. GREGG, Waynoka; from Fort Oglethorpe, Lieut. D. W. VINCENT, Oklahoma City.

To Camp Sherman, Ohio, base hospital, from Army Medical School, Lieut. O. J. WALKER, Oklahoma City.

To Camp Wadsworth, S. C., Capt. H. H. CLOUDMAN, Oklahoma City.

To Fort Oglethorpe for instruction, Lieuts. L. A. MITCHELL, Frederick; C [illegible] va.

To Fort [illegible] hospital, from Camp Devens, Lieut. W. LANGS[illegible]

To report [illegible] *general*, Philippine Department, from Camp Cody, Capt. R. E. WELLER, Pawnee.

The following order has been revoked: *To Fort Riley* for instruction, Lieut. E. D. JAMES, Miami.

Oregon

To Camp Abraham Eustis, Va., from Western Department, Lieut. A. O. WALLER, Eugene.

To Camp Pike, Ark., evacuation hospital, from Camp Lewis, Capt. J. L. McCOOL, Portland.

To Jefferson Barracks, Mo., base hospital, from Camp Lewis, Lieut. H. P. BELKNAP, Jr., Portland.

Pennsylvania

To Boston, Mass., Harvard Graduate School of Medicine, for instruction, from Fort Oglethorpe, Lieuts. L. J. LIVINGOOD, Philadelphia; S. H. KELLER, Pittsburgh.

To Camp A. A. Humphreys, Va., from Fort Oglethorpe, Capt. E. M. HALEY, Blossburg.

To Camp Beauregard, La., base hospital, from Fort Oglethorpe, Lieut.-Col. A. C. ABBOTT, Philadelphia; Lieut. A. B. SMITH, Wyoming.

To Camp Crane, Pa., from Rockefeller Institute, Lieut. J. R. CONOVER, Philadelphia.

To Camp Custer, Mich., base hospital, from Houghton, Mich., Lieut. P. N. HUNSICKER, Beaver Meadows.

To Camp Forrest, Ga., from Central Department, Major H. TUCKER, Philadelphia.

To Camp Gordon, Ga., Lieut. H. H. STEWART, Friedensburg. Base hospital, from Fort Oglethorpe, Capt. A. R. MATHENY, Pittsburgh.

To Camp Hancock, Ga., base hospital, from Army Medical School, Capt. E. H. PERRY, Washington.

To Camp Jackson, S. C., evacuation hospital, from Fort Oglethorpe, Lieut. H. W. OSTRUM, Philadelphia.

To Camp Joseph E. Johnston, Fla., base hospital, from Fort Oglethorpe, Lieuts. G. S. HENSYL, Mahoney City; T. B. HERRON, Monesson.

To Camp Lee, Va., Capt. L. FISHER, Philadelphia. Base hospital, Capt. C. L. PALMER, Pittsburgh.

To Camp Logan, Texas, to examine the command for nervous and mental diseases, from Camp Wadsworth, Lieut. G. A. PARKER, South Bethlehem.

To Camp Upton, N. Y., Capt. B. P. STEELE, McVeytown.

To Camp Wheeler, Ga., to examine the command for nervous and mental diseases, from Camp Wadsworth, Lieut. M. H. WEINBERG Pittsburgh.

To Colonia, N. J., from Camp Devens, Lieut. L. W. KOHN, Philadelphia.

To Fort McPherson, Ga., from Fort Oglethorpe, Capt. R. L. McNEER Philadelphia.

To Fort Oglethorpe for instruction, Capt. W. G. EYMAN, Pitts [illegible] KOSHLAND, Cassville; H. J. WILLIAMS, Ger [illegible] ohnstown; W. D. BARRY, Philadelphia; H. C [illegible]

To Jeffersonville, Ind., Lieut. Z. R. SCOTT, Pittsburgh.

To Lonoke, Ark., Eberts Field, from Lake Charles, La., Lieuts. D. JACKSON, Erie; S. L. WINGRADE, Philadelphia.

To New Haven, Conn., Yale Army Laboratory School, for instructio Leiut. L. W. WRIGHT, Williamsport.

To Newport News, Va., base hospital, from Hoboken, Capt. SOLIS-COHEN, Philadelphia; Lieut. F. L. ALEXAITIS, Wilkes-Barr

To New York, Neurological Institute, for instruction, Lieuts. C. A. BEHNEY and R. C. BUERKI, Philadelphia.

To Rockefeller Institute, from Camp Upton, Capt. J. V. KLAUDER, Philadelphia. For instruction, from New Haven, Lieuts. G. A. DAPP, Harrisburg; O. R. ETTER, Philadelphia; N. D. GANNON, Pittsburgh.

Porto Rico

To Camp Las Casas, P. R., base hospital, from Army Medical School, Lieut. L. A. SALIVA, Rio Fiedras.

Rhode Island

To Camp Wadsworth, S. C., from Camp Custer, Lieut. R. METCALF, Providence.

South Carolina

To Camp Hancock, Ga., base hospital, Capt. L. C. SHECUT, Orangeburg.

To Camp Sheridan, Ala., from Fort Oglethorpe, Lieut. W. L. PRESSLY, Due West.

To Walter Reed General Hospital, D. C., from Fort Oglethorpe, Lieut. J. K. WICKER, Newberry.

South Dakota

To Camp Joseph E. Johnston, Fla., base hospital, from Boston, Lieut. L. J. BROCKMAN, Vermilion.

To Rochester, Minn., Mayo Clinic, for instruction, and on completion *to his proper station,* from Camp Dodge, Capt. J. D. WHITESIDE, Aberdeen; Lieut. R. G. STEVENS, Sioux Falls; from Camp Grant, Lieut. H. SPRAGUE, Huron; from Fort Riley *Lieut.* D. W. CRAIG, Sioux Falls.

Tennessee

To Biltmore, N. C., Lieut. H. C. WYSONG, Beech Grove.

To Camp Crane, Pa., from Camp Grant, Lieut. J. F. BINKLEY, Nashville.

To Camp Custer, Mich., from Central Department, Capt. J. D. HENDERSON, Knoxville.

To Camp Dick, Texas, from Dallas, Major V. K. EARTHMAN, Murfreesboro.

To Camp Hancock, Ga., base hospital, from Army Medical School, Lieut. R. V. DePUE, Knoxville.

To Camp Jackson, S. C., evacuation hospital, from Fort Oglethorpe, Capt. J. B. SHOUN, Hampton.

To Camp Las Casas, P. R., Lieut. L. P. BROOKS, Chattanooga.

To Camp Logan, Texas, as tuberculosis examiner, *from* New Haven, Lieut. W. O. BAIRD, Memphis.

To Camp McClellan, Ala., from Atlanta, Capt. E. D. WATKINS, Memphis.

To Camp Sheridan, Ala., from Fort Oglethorpe, Lieut. C. T. WATERS, Memphis.

To Camp Zachary Taylor, Ky., Lieut. M. S. DAVIS, Fayetteville.

To Fort McPherson, Ga., Lieut. H. B. PARRISH, Nashville.

To Fort Oglethorpe, evacuation hospital, from Camp Upton, Major H. H. SHOULDERS, Nashville. For instruction, Lieut. L. S. McMULLEN, Knoxville.

To report to the governor of Tennessee as medical aide, Capt. P. DeWITT, Nashville.

To Washington, D. C., Surgeon-General's Office, from duty as medical aide to the governor of Tennessee, Major W. D. HAGGARD, Nashville.

The following order has been revoked: *To Fort Oglethorpe* for instruction, Lieut. T. W. RHODES, Whiteville.

Texas

To Boston, Mass., Harvard Graduate School of Medicine, for instruction, from Camp Devens, Lieut. H. SHANNON, Dallas.

To Camp A. A. Humphreys, Va., Lieut. R. E. STACK, Erwin.

To Camp Beauregard, La., base hospital, from Fort Oglethorpe, Lieut. J. CAMP, Pacos.

To Camp Custer, Mich., from Camp Meade, Lieut. A. J. MYNATT, Houston.

To Camp Greene, N. C., evacuation hospital, from Camp Gordon, Capt. C. C. GREENE, Houston.

To Camp Jackson, S. C., evacuation hospital, from Camp Logan, Lieut. F. N. HAGGARD, San Antonio.

To Camp MacArthur, Texas, base hospital, Capt. T. J. WALTHALL, San Antonio.

To Camp Pike, Ark., evacuation hospital, from Camp MacArthur, Lieut. O. S. McMULLEN, Victoria.

To Camp Travis, Texas, Lieut. C. T. DUFNER, Yoakum; from Camp Head Springs, Capt. F. O. BARRETT, El Paso; Lieut. R. E. PRIDGEN, Oakland; from Douglas, Ariz., Capt. F. H. SHAW, Marlin. Base hospital, Capt. O. EHLINGER, College Station; Lieut. J. E. *HARRIS, Brazoria.*

To Dallas, Texas, from Call Field, Capt. H. J. REGER, Vernon.

To Fort Oglethorpe for instruction, Capts. H. B. PEDIGO, Beaumont; F. P. HERFF, San Antonio; Lieut. S. ISRAEL, Houston.

To Hoboken, N. J., base hospital, from Camp Dix, Lieut. H. L. BROWN, Sherman. Evacuation hospital, from *Fort Oglethorpe,* Lieut. J. W. GOODE, San Antonio.

To report to the commanding general, Philippine Department, from Camp Travis, Lieut. C. K. ARNOLD, Bibles.

To Rochester, Minn., from Fort Myer, Lieut. R. ATKINSON, *Pleasanton.*

To Rockefeller Institute for instruction, from New Haven, Lieut. J. D. MARTIN, Call.

The following order has been revoked: *To Camp John Wise, Texas,* from Camp Kelly, Capt. T. P. BRYAN, Dublin.

Utah

To Camp Pike, Ark., evacuation hospital, from Western Department, Lieut. C. A. NYVALL, Salt Lake City.

To New Haven, Conn., Yale Army Laboratory School, for instruction, from Fort Riley, Lieut. J. J. GALLIGAN, Salt Lake City.

Vermont

To Atlanta, Ga., Georgia School of Technology, from Fort Oglethorpe, Capt. G. ROBERTS, Chester.

To Boston, Mass., Harvard Graduate School of Medicine, for instruction, from Fort Oglethorpe, Lieut. D. R. BROWN, Lyndonville.

To Carlisle, Pa., from Camp Devens, Capt. O. V. HEFFLON, Wardsboro.

To Rockefeller Institute for instruction, from New Haven, Lieut. A. L. FOGG, Underhill.

Virginia

To Boston, Mass., Harvard Graduate School of Medicine, for instruction, from Fort Oglethorpe, Capt. L. N. HARRIS, Harrisonburg.

To Camp Beauregard, La., base hospital, from Fort Oglethorpe, Lieut. C. C. CARR, Toms Creek.

To Camp Lee, Va., Lieut. F. F. RIGHTER, Richmond.

To Camp Upton, N. Y., Capt. H. R. DREWRY, Norfolk.

To Fort Oglethorpe for instruction, Capt. M. C. SYCLE, Richmond; Lieut. W. H. RE MINE, Lodi.

To Newport News, Va., from Army Medical School, Lieut. J. O. FITZGERALD, Richmond. Base hospital, from Hoboken, Lieut. P. E. TUCKER, Buckingham.

Washington

To Camp Dodge, Iowa, from Vancouver Barracks, Capt. G. W. PHILLIPS, Bridgeport.

To Camp Lewis, Wash., base hospital, from duty as a contract surgeon, Capt. H. G. LAZELLE, Seattle.

To Camp Travis, Texas, from Camp Newton D. Baker, Major E. BAILEY, Mansfield.

To Jefferson Barracks, Mo., base hospital, from Camp Lewis, Lieuts. W. L. JACKSON, Burlington; S. A. DE MARTINI, Tacoma.

To San Francisco, Calif., for instruction, and on completion *to his proper station,* from Camp Lewis, Capt. E. L. INGERSOLL, Spokane; Lieut. C. D. HUNTER, Tacoma; from Letterman General Hospital, Capt. E. E. BECKETT, Seattle.

West Virginia

To Camp Cody, N. M., base hospital, from Camp Bowie, Lieut. F. C. HODGE, Huntington.

To Camp Custer, Mich., from Central Department, Capt. N. R. PRICE, Marlinton.

To Camp Lee, Va., Capt. H. D. CAUSEY, Fairmont.

To Camp Sevier, S. C., base hospital, Capt. L. C. MORRISON, Milton.

To Camp Upton, N. Y., Lieuts. A. T. GORDON, Reedy; W. L. Y. CURREY, Sandyville.

To Edgewood, Md., base hospital, Lieut. B. S. PARKS, Spencer.

To Fort Oglethorpe for instruction, Capt. H. H. STAATS, Spencer; Lieuts. E. D. WELLS, Hinton; G. W. ABERSOLD, Wheeling.

To report to the commanding general, Philippine Department, from Camp Lewis, Capt. C. G. WILLIS, Kingston.

Wisconsin

To Azalea, N. C., Capt. E. W. SMITH, Madison.

To Camp Dodge, Iowa, base hospital, Lieut. A. T. SHEARER, Edgerton.

To Camp Joseph E. Johnston, Fla., base hospital, from Fort Oglethorpe, Capt. V. F. MARSHALL, Appleton.

To Camp McClellan, Ala., with the board examining the troops for cardiovascular diseases, from Washington, Lieut. D. H. WITTE, Hartford.

To Camp Meigs for instruction, and on completion *to Camp Meade, Md.,* from the Surgeon-General's Office, Major J. R. McDILL, Milwaukee.

To Camp Pike, Ark., evacuation hospital, from Camp Sherman, Lieut. C. E. STOLZ, Milwaukee; from Fort Oglethorpe, Capt. A. S. WHITE, Rice Lake; Lieut. H. L. GARNER, Rhinelander.

To Camp Sheridan, Ala., evacuation hospital, from Camp Shelby, Lieut. G. M. SMITH, Chippewa Falls.

To Camp Upton, N. Y., Lieut. C. A. WILSKE, Milwaukee.

To Fort Oglethorpe for instruction, Lieut. G. J. FLANNAGAN, Kaukauna.

To report to the commanding general, Philippine Department, from Camp Travis, Lieut. C. D. MARTIN, Wauwatosa.

To Rochester, Minn., Mayo Clinic, for instruction, and on completion *to his proper station,* from Camp Grant, Capt. P. A. FOX, Milwaukee.

To Washington, D. C., Surgeon-General's Office, from Milwaukee, Major G. V. I. BROWN, Milwaukee.

Wyoming

To Camp Sheridan, Ala., base hospital, from Fort Oglethorpe, Capt. W. A. STEFFEN, Sheridan.

To Camp Travis, Texas, from Southern Department, Lieut. H. O. BROWN, Sheridan.

Economic Cost of Syphilitic Mental Diseases to the State of New York.—The total number of patients of this description, including cases of general paralysis, cerebral syphilis and tabes dorsalis, in civil state hospitals, hospitals for criminal insane and in private licensed institutions on June 30, 1917, was 1,554. The number of those first admitted during the fiscal year, 1916-1917, was 965. The per capita cost of support of all patients under treatment in the civil state hospitals was $303.68. Assuming the cost to be no less in the other institutions, this gives the sum of $471,918.72 as the cost of maintenance of the 1,554 patients with syphilitic insanity for the year. To this cost is added the loss of earnings. Assuming that the period of productivity ends at the close of the sixty-fifth year, that the average earnings are the same throughout the years of productivity and amount to $500 above the cost of maintenance in the case of males, and to $100 in the case of females, one gets the staggering figure of $4,926,726.27 as the year's loss of earnings on the part of these patients, and therefore, a sum of $5,398,644.99 as the total loss to the state.—*Mental Hygiene.*

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Free Typhoid Inoculation.—Dr. Judson D. Dowling, health officer of Birmingham and Jefferson County, announces that free typhoid inoculation will be administered by his officials. The serum will be furnished by the United State Public Health Service.

Crusade Against Social Diseases.—Dr. Samuel W. Welch, state health officer of Alabama, Montgomery, announces that a crusade against social diseases in the state will be launched, September 2, under the direction of Prof. W. C. Blasingame, who will undertake to establish in every county a free clinic for the treatment of venereal diseases. For the support of this work about $23,000 has been appropriated to the state by the United States government, and it is expected that the state will contribute the remainder of the amount necessary for the successful conduct of this crusade.

CALIFORNIA

Unlicensed Practitioners Arrested.—"Dr." Chew Yuen, a Chinese herb doctor of Red Bluff and "Drs." Walter C. Hoyt and Lindsay, Manton, are said to have been arrested, August 21, on the charge of having practiced medicine without a license.

The Stehman Memorial.—The eighth annual report of the La Vina Sanatorium, Millard Canyon, sets forth the great and unselfish service rendered sufferers from tuberculosis by the late Dr. Henry B. Stehman, Pasadena; founder and president of the institution until his death. As a suitable memorial to Dr. Stehman, and to insure the permanency of La Vina, it has been decided to raise $200,000 by popular subscription as a Henry B. Stehman Memorial Fund. At present there is an investment in land, buildings, and equipment of more than $125,000, and the endowment fund amounts to more than $42,000.

Hospital Items.—The new San Diego County tuberculosis hospital, San Diego, which is known as the Vauclain Home, in honor of the late J. V. Vauclain, who by his will left $16,000 for the upkeep of a hospital for patients suffering from tuberculosis, was opened to receive patients, September 3.——A building has been donated to the Cottage Hospital, Santa Barbara, by George Owen Knapp, C. K. G. Billings, Clarence A. Black and Frederick P. Peabody, to be used as a clinical building by Dr. Nathaniel Bowditch Potter of the Carnegie Foundation for medical research work. The building will be two stories in height and equipped with every essential for the successful carrying out of this important work.

Personal.—Dr. Henry G. Watters, Watsonville, has resigned as assistant physician of Santa Cruz County to enter the military service.——Dr. Peter C. Remondino has been reelected president of the San Diego Board of Health. Since 1876, Dr. Remondino has been for more than twenty-one years a member of the board and is now entering on his seventh term as president.——Dr. Viola Lantz, San Jose, has started for France under the auspices of the American Red Cross.——Dr. John H. Seiffert, San Diego, who was arrested by a representative of the state board of pharmacy, September 3, on two charges of having sold cocaine to a habitual user, is said to have pleaded guilty and to have been fined $200 for each offense.

COLORADO

License Revoked.—The Colorado State Board of Medical Examiners, at a recent meeting, is reported to have revoked the license of Dr. Alfred Ephraim Max of Denver. Five other cases were dismissed. Charges reported against the physicians were for the use of drugs, malpractice and immoral conduct.

Personal.—Dr. John Smitts, Leadville, who had been charged with disloyalty and pro-Germanism, has been completely exonerated by the Delta County Council of Defense, which found the charges unwarranted and unsubstantiated.——Dr. William P. Harlow, Boulder, head of the School of Medicine of the University of Colorado, has been appointed a major in the Medical Corps, and has been placed in charge of General Hospital No. 21, Aurora.

ILLINOIS

Illegal Practitioner Fined.—Mrs. W. M. Rybicki, Chicago, is reported to have been fined $50 and costs for treating patients without having a license.

State Seals Well.—As the result of the investigation conducted in Moline by the state board of health the McGovern well has been ordered to be sealed by a lock. It has been determined by the board that this well was the source of the typhoid fever epidemic in the west end of the city.

The Prevention of Blindness.—September 6, two midwives were prosecuted before Judge Fry in the municipal court for failure to observe the requirements of the Act for the Prevention of Blindness from ophthalmia neonatorium. Both were convicted, and the minimum fine of $10 was imposed in each case, as it was their first offense. A vigorous prosecution of midwives and physicians who do not observe the requirements of the law in the care of the eyes of the newly born has been begun by Attorney-General E. J. Brundage through his assistant, Charles E. Bartlett.

KENTUCKY

Personal.—Dr. William L. Davis, Martinsburg, is said to have been taken before the United States commissioner at Glasgow, August 16, charged with making unpatriotic utterances. He was held to the federal grand jury a bond of $5,000.——Arthur L. Nelson, for four years secretary and assistant superintendent of the Louisville City Hospital, and for thirteen years connected with the institution, has resigned to accept a position with the United States Public Health Service.——Dr. Florence Meder, for eighteen years a member of the staff of state hospitals for insane in Kentucky, has resigned as second assistant physician at the Central State Hospital, Lakeland, and will engage in sanatorium work in Louisville.——Dr. Isaac D. Winston, Sturgis, is reported to be critically ill in Evansville, Ind.

State Society Meeting.—At the sixty-eighth annual meeting of the Kentucky State Medical Association, held in Louisville under the presidency of Dr. James S. Lock, Barbourville, the following officers were elected: president, Dr. John G. South, Frankfort; vice presidents, Drs. Hugh W. Gates, Calhoun, Hugh L. McLean, Wilmore, and Robert W. Frey, Trenton; secretary, Dr. Arthur T. McCormack, Bowling Green (reelected); treasurer, Dr. William B. McClure, Lexington (reelected); delegates to the American Medical Association, Drs. Daniel M. Griffith, Owensboro, and Lewis S. McMurtry, Louisville; orator in surgery, Dr. William B. Owen, Louisville; orator in medicine, Dr. Thompson F. Wickliffe, Jackson; councilor for the fifth district, Dr. Ben C. Frazier, Louisville, and councilor for the third district, Dr. William H. Neel, Bowling Green.

MARYLAND

Personal.—Lieut. Charles W. Myers, Baltimore, who has been at the front for several months, has been given the Distinguished Service Medal.——Evacuation Hospital No. 16, which is in command of Major Page Edmunds, Baltimore, has arrived safely overseas.——Capt. Frank J. Powers of Baltimore, who is connected with Evacuation Hospital No. 12, has arrived in France.

New Ward at Fort McHenry Opened.—The first of twenty-five wards recently authorized by Congress was formally opened, September 13, at the U. S. Army General Hospital No. 2, Fort McHenry. This new ward with sixteen others was started about two weeks ago. All of them are two stories in height and are built of tile. Each is arranged to accommodate at least ninety-six patients.

Board of Medical Officers Named for Unusual Duty.—Major-Gen. Jesse McI. Carter, commander of the Lafayette Division at Camp Meade, has announced the appointment of a board of three officers of the Medical Corps to "examine into, determine and report on the sanity of four soldiers accused of violating certain articles of war." The board is composed of Capts. Andrew C. Gillis, Baltimore; Theodore I. Townsend, Binghamton, N. Y., and George F. Sargent, Towson, Md. The men will be held under observation sufficiently long to enable the board to report on their mental condition.

MICHIGAN

Personal.—Dr. Worth Ross, medical supervisor for the Detroit Children's Aid Society, has been appointed a member of the American Red Cross Tuberculosis Commission to Italy.

——Dr. Charles H. Oakman, Detroit, has been appointed inspector of the House of Correction.

Drug Law Violators Punished.—"Dr." G. C. Smith, Detroit, charged with the violation of the Harrison Narcotic Law is said to have been found guilty, August 16, fined $4,000 and sentenced to imprisonment for two and one-half years in the federal penitentiary, Fort Leavenworth, Kan.——Dr. John S. Dohany, Detroit, charged with a similar violation of law, is said to have pleaded guilty and to have been fined $6,000.

Sterilization Law Unconstitutional.—The Michigan law providing for the sterilization of mental defectives or insane persons in institutions has been declared unconstitutional by the supreme court of Michigan on the ground that it is class legislation. The law provided that only those persons confined in institutions at public expense were to come within the operation of the law, and did not include all mental defectives or insane persons. The court did not pass on the constitutionality of the principle of sterilization.

MINNESOTA

Infantile Paralysis Checked.—Executive officers of the state board of health announce that there are no cases of poliomyelitis in the state excepting three cases in Minneapolis, which are believed to have been imported. He states also that the reports to the effect that there are a large number of cases in Minnesota are erroneous.

Medical Society Cares for Its Members.—In addition to its free work among soldiers and the entry of seventy-five of its members into the Medical Corps of the Army, the Hennepin County Medical Association is giving free care to the families of soldiers, and has also established a fund of $15,000 to cover the necessary expenses incurred in this care. Since the association has been doing this work, nearly 200 cases of illness among the members of soldiers' families have been treated.

Sanatorium Betterment.—A get-together meeting to formulate plans for closer cooperation between various sanatoriums of the state was held at the State Sanatorium, Walker, recently. Dr. Robinson Bosworth, St. Paul, executive secretary of the advisory commission, and representatives of nine sanatoriums were present.——A tuberculosis clinic was held at the Riverside Sanatorium, Granite Falls, September 7, by Dr. Abraham P. Terk, medical director of Riverside Sanatorium, under the auspices of the sanatorium commission.

Venereal Disease Report.—During August, 1918, 127 physicians and institutions of the state reported to the Minnesota State Board of Health on syphilis, gonorrhea and chancoid, giving the location of the disease and the source of infection, in accordance with the regulations for the reporting of venereal diseases. For the diseases, syphilis, gonorrhea and chancroid, in the order named, the numbers of cases reported from the state at large were 33, 49 and 2; for Minneapolis, 228, 95 and 5; for St. Paul, 43, 42 and 0; total, 304, 86 and 7, or a grand total for the three diseases of 497.

Tuberculosis Survey.—A survey of Roseau County for tuberculosis is being made under the auspices of the state board of health by Dr. Ray D. Gardner, Eveleth, epidemiologist of the state board of health; Dr. William H. Fortin, representing the advisory commission of the State Sanatorium for Consumptives, and a trained nurse from the health department. The work will occupy a month. An endeavor is being made to locate and examine every tuberculous individual in the county, to supervise the method of living of the individual if he remains at home, to refer him to the county sanatorium if he belong there, and to examine and exercise strict supervision over other members of the family if the tuberculous patient resides at home.

Weekly Health Journal.—The Minnesota Public Health Association has begun what is called "Experiment Number One" in the publication of a weekly journal called the *Minnesota Public Health Association Journal,* the first number of which appeared, September 5. This has followed the reorganization of the administrative staff of the association, which now operates through its board of directors of sixty members, its officers, and its executive committee of seven members. Dr. Hibbert W. Hill, St. Paul, executive secretary of the association, is editor, and he bespeaks the support of all persons in making the weekly a success. The first number contains eight pages of interesting editorials and articles, including an interview with Dr. Arthur T. Laird, Duluth, who describes in an interesting manner some features of the work in tuberculosis among French soldiers and refugees in France, where he spent eight months previous to June, 1918.

NEW YORK

Hospital Offered to Government.—The superintendent of the Albany Hospital has formally offered the institution to the government as a reconstruction hospital for crippled soldiers.

Personal.—Dr. Harold L. Palmer, who has been superintendent of the Utica General Hospital since 1899, has resigned on account of ill health. His resignation will take effect April 1, next.——Dr. William Warren Britt, Tonawanda, has been appointed secretary of the Western New York Medical Society, to succeed Dr. Lyman C. Lewis, Belmont, who has resigned to enter the military service.——Dr. William H. Murray, Albany, has been nominated as postmaster of Albany to succeed himself.——Dr. Claude R. Woods, Delhi, fractured his right arm near the wrist while cranking his motor car, August 26.——Dr. Archibald T. Banning, Mount Vernon, who had charge of the isolation hospital during the smallpox epidemic in June, has submitted a bill for services for $4,800, or at the rate of $100 a day. During the epidemic there were six cases under treatment.

New York City

New Hospital at Camp Mills.—In connection with the conversion of Camp Mills, Long Island, from a temporary to a permanent cantonment, work has been begun on a new base hospital which will furnish accommodations for 2,000 patients.

Medical Society Dissolves.—The application of the directors of the American Association of Medical Jurisprudence for dissolution has been granted by the supreme court. The society goes out of existence because of an alleged loss of interest on the part of its members. It has no creditors and no obligations.

Women Motor Ambulance Corps Reviewed.—The Women's Motor Corps of the New York Chapter of the American Red Cross, which is in charge of forty ambulances in this city, went through a stretcher drill and unit formation in Central Park, September 14. They were reviewed by the corps surgeon who highly commended the work of these volunteers.

Women Doctors Decorated.—Three women surgeons from New York have been decorated by the French government and commissioned lieutenants in the French army. They are Drs. Caroline S. Finley, Anna I. Von Sholly and Mary Lee Edward. The commissions and decorations were given for excellent surgical work and treatment of the wounded during heavy bombardment in a hospital near the French front.

Personal.—Dr. Arnold Sturmdorf has been appointed consulting gynecologist at the Manhattan State Hospital.——Dr. Dudley H. Morris has been appointed police surgeon, to succeed Dr. Archibald Smith, Brooklyn, who has resigned.——Dr. Gustav F. Boehme, Jr., has been appointed temporary police surgeon, to succeed Dr. Edward T. Higgins, who has resigned to enter the military service.

Health Department Gives First Aid Lectures.—Dr. Royal S. Copeland, health commissioner, has arranged a series of lectures on first aid and similar topics for the employees of the health department and the public generally. The first of these lectures was delivered, September 11, the subject being "First Aid from the Fire Prevention Engineer's Viewpoint." The subject of the second lecture, September 18, in the Municipal Building, was "First Aid Resuscitation."

Pneumonia and Not Inflenza.—Pneumonia and other bronchial diseases and not the so-called Spanish influenza are said to be responsible for the illness of the majority of the persons who were reported to be ill with the disease on steamships recently arriving from England. Of eleven patients who arrived on one steamer, and who were alleged to be suffering from the disease, it was ascertained that the illness was pneumonia or bronchitis and that no indications of influenza were present.

New York Oysters Free from Typhoid.—The Merchant's Association, which for several years has been interested in preventing the sale of infected oysters, has called the attention of Health Commissioner Copeland to the need of protecting the oyster beds in the vicinity of the city. In reply Dr. Copeland has issued a statement announcing that the danger of typhoid infection by the consumption of oysters has been practically eliminated through the inspection of the oyster beds, shipment and places of sale. No case of typhoid fever has been traced to oysters in New York City so far this year.

Exposition of Chemical Industries.—The fourth national exposition of chemical industries will be held in the Grand Central Palace during the week beginning September 23.

Arrangements have been made for the display of more than 350 exhibits, and nearly all of these have a bearing in one way or another on the production of war materials. Although the federal authorities have made an agreement whereby they are to take over the Grand Central Palace within a few days, for the purpose of converting it into a war hospital, they have waived this right in view of the importance of the exposition.

Nurses Needed for Insane.—One thousand women nurses are needed in the state hospitals for the insane to replace nurses and attendants who have gone into national service. In making this announcement the State Hospital Commission calls attention to the fact that the New York State hospitals have arranged with the federal government to receive all mental cases developing in citizens of this state with the Army and Navy forces. A considerable number of such cases have already been received. The state hospitals also train male nurses, and applications are invited from men who are not available for military duty. The state hospitals also provide a shorter course of instruction in practical nursing for attendants, covering about six months. The training school classes start October 1. Further particulars and application blanks may be obtained from the State Hospital Commission, Albany.

OHIO

Personal.—Dr. William C. Heintz, Columbus, has been appointed coroner of Franklin County, to succeed Dr. Louis M. Herskowitz, who has resigned to enter the military service. ——Dr. Joseph L. Johnson, Columbus, has been nominated by the President as Minister Resident and Consul-General to Liberia.

State Laboratory Work.—More laboratory examinations for the diagnosis of syphilis are being made by the laboratory of the state department of health than for the diagnosis of any other disease. Between April 1 and September 1, 2,115 such examinations have been made. The examinations for tuberculosis amounted to nearly this number, and diphtheria ranked third.

Notification of Venereal Disease.—The regulations requiring reports on venereal disease to the state board of health became effective, July 1. During July and August notifications were received by the state department of health of 535 cases of gonorrhea and 561 cases of syphilis. In the corresponding months of last year only 181 cases of gonorrhea and 142 of syphilis were received. Physicians in many communities have not yet been aroused in aiding the health authorities in the control of venereal infection.

PENNSYLVANIA

New Hospital.—Physicians of Bethlehem have purchased the Sigma Chi Fraternity House for $25,500, and after alterations and remodeling will open the building as a city hospital.

Green Crosses on Motor Cars.—The mayor of Harrisburg has requested physicians to place a green cross on the windshield of their automobiles, to enable traffic policemen to distinguish them from other machines so that they may be granted prompt right of way.

State Society Meeting.—The Medical Society of the State of Pennsylvania will hold its annual meeting in Philadelphia, September 24 to 27, under the presidency of Dr. Walter F. Donaldson, Pittsburgh. War and the reconstruction period will be the principal topic for discussion.

Sanatorium for Incipient Cases of Tuberculosis.—The Rush Hospital for Consumption and Allied Diseases is building a new pavilion at their country branch, Malvern, for forty incipient cases. It is the intention of the board of trustees, after its completion, to offer this pavilion to the government.

Typhoid at Hastings.—The impure water situation in Hastings is believed to be responsible for forty-eight cases of typhoid fever in the town, with new cases constantly developing. Twenty-eight of these cases are under treatment at the Miner's Home Hospital, Sangler. The state inspector of health has found that house sewage is drained into one of the two springs from which the water supply of the town is derived.

Infantile Paralysis.—Infantile paralysis is said to exist in eighteen counties of the state, but no locality has assumed alarming proportion with the exception of Franklin County where there are twenty-six cases, of which fifteen cases are in the borough of Chambersburg. The local board of health has forbidden the opening of schools until the disease is under control, and has given orders to exclude all persons of less than 18 years from public gatherings.

Personal.—Dr. A. Hamilton Stewart, Indiana, deputy coroner of Indiana County, fractured his collar-bone and a rib in the overturning of his automobile, recently.——Dr. J. Frank Donehoo, Washington, has been appointed local surgeon for the Pennsylvania system, to succeed Dr. David H. Lewis, resigned.——A genito-urinary dispensary has been opened at Scranton by the state board of health, with Dr. Frank C. Garvey in charge. This is the eleventh dispensary thus far established by the state health department.——Dr. Paul G. Weston of the staff of the State Hospital, Warren, underwent operation at the Warren General Hospital, August 26, and is reported to be doing well.——Dr. Sue S. Moyer, East Pittsburgh, has been made medical officer of the Westinghouse Electric and Manufacturing Company, Pittsburgh.——Dr. Christopher H. Shearer, Reading, is reported to be seriously ill with septicemia at the Reading Hospital.

Philadelphia

Personal.—Dr. William L. Clark has been elected president of the American Electro-Therapeutic Association.——Dr. Jay F. Schamberg, professor of dermatology and syphilology, delivered the address at the opening of the ninety-fourth annual session of the Jefferson Medical College, September 23, on "Medicine—Then and Now."——Dr. Maurice Brown has been appointed assistant medical inspector of the board of health.——Drs. J. Handley, Florence M. Gottshall and Effie C. M. Paul have been appointed school medical inspectors.——Capt. William F. Guilfoyle, assistant surgeon of the 111th Infantry, has been severely gassed in France. He is now in Base Hospital No. 31 in a very serious condition.

Department of Diagnosis Formed.—Wider utilization of the science of medicine in the administration of justice, as well as in the care of probationers, has been assured in the formation of the various medical agencies of the municipal court of Philadelphia into a department of diagnosis. Dr. Charles B. Penrose is director of the department and cooperating with him are Drs. Daniel J. McCarthy, Charles S. Potts, Seymour W. D. Ludlum, John C. Da Costa, Jr., Thomas A. Shallow and James H. Baldwin. The plan is eventually to coordinate all the medical work of the court under a medical director who will devote his entire time to this service. The administration headquarters will be at the southwest corner of Twentieth and Summer streets.

WEST VIRGINIA

State Society Meeting.—The annual meeting of the West Virginia State Medical Association will be held in Martinsburg, October 1 to 3, with headquarters at the Hotel Berkeley.

Senior Student Killed.—Boyd Wallace Knight, Williamsburg, a senior student in the University of Louisville, Ky., attached to the Emergency Hospital, Nitro, was killed, August 24, in a grade-crossing accident in which a freight car backed into the hospital ambulance demolishing it and killing both the driver and the attendant.

WISCONSIN

Hospital for Merrill.—A. H. Stange has offered to donate $50,000 toward the building of a hospital at Merrill and to furnish a site providing the town will assume the care and maintenance of the institution.

Personal.—Dr. Gustave Windesheim has accepted the position of commissioner of public health of Kenosha.——Dr. Fred W. Sachse, Hartford, who was taken ill with gallstone colic, August 23, and who has been under treatment in St. Mary's Hospital, Milwaukee, is reported to be improved.

Physician Fined and Sentenced.—Dr. John G. Barnsdale, Superior, convicted, August 9, for violation of the Harrison Narcotic Law, is reported to have been found guilty of all eight counts in the indictment and to have been sentenced to imprisonment for three years in the federal penitentiary at Fort Leavenworth and to pay a fine of $6,000.

TEXAS

Antityphoid Inoculation.—The free typhoid clinic of the Public Health Service Bureau of Fort Worth has given antityphoid inoculations to more than 18,000 citizens of Fort Worth.

Personal.—Dr. David E. Rouse, San Antonio, formerly field director for the Texas Board of Health has been appointed public health officer for Des Moines, succeeding Dr. William C. Witte.——Dr. Nelson O. Brenizer, Austin, has been commissioned major in the M. C., Texas N. G., and has been assigned to duty with the Eighth Regiment.——Dr. William Hale, Jr., Dallas, has been appointed health officer of Dallas County to succeed Dr. Taylor C. Gilbert, who has resigned to enter the military service.——Dr. Tristram B. Hamer, Richardson, was seriously injured by the overturning of his automobile and is under treatment at St. Paul Sanitarium, Dallas.——Dr. Oscar Davis, Anderson, has been appointed assistant health officer to succeed Dr. Addeson L. Lincecum, who has resigned to enter the military service.——Dr. William W. Greer, Cameron, has been appointed assistant physician at the Austin State Hospital.

CANADA

New Officers.—Dr. George H. Murphy, Halifax, N. S., has been elected president of the Medical Society of Nova Scotia, and Dr. James R. Corston, Halifax, has been reelected secretary-treasurer.——The Medical Council of Canada has elected the following officers: president, Dr. R. Eden Walker, New Westminister, B. C.; vice president, Dr. James C. Connell, Kingston, Ont., and registrar, Dr. Robert H. W. Powell, Ottawa (reelected).

Personal.—Prof. Louis de L. Harwood, Montreal, has been appointed dean of the medical department of Laval University.——Dr. Frederick A. Cleland, Toronto, is going with the Canadian forces to Siberia.——Dr. Harry B. Anderson, Toronto, has been appointed by the Hon. Dr. Cody, minister of education for Ontario, chief medical referee for the Ontario Branch of the Inspectors' and Teachers' Superannuation Fund Commission.——Capt. T. Harold Crews, Woodstock, has been transferred from the Imperial Army to the C. A. M. C., owing to the great demand in Canada for returned medical men with overseas experience. He has just returned to Canada from France.

Public Health.—Dr. Willis B. Moore, Kentville, N. S., has been elected president of the Association of Medical Officers of Nova Scotia. Despite the absence of the many physicians who are in active service, the attendance at the annual meeting was a success.——Venereal control in the Halifax Military District will be under the care of a cooperative committee. Capt. William H. Hattie, M. O. H., Halifax, N. S., will be the chairman. It is said that the venereal incidence in enlisted men is now very small in that district, but in those just called to service numerous cases of infection have revealed themselves.——The seventh annual convention of the public health services of the province of Quebec was recently held in Quebec City. Industrial hygiene and public health in the province of Quebec, venereal diseases, tuberculosis, and other similar questions were fully discussed.

Hospital News.—Notre Dame Hospital, Montreal, has been conducting a relief fund campaign. The result totaled $267,153.50. The directors of the hospital subscribed $10,000; and as the fund amounted to more than $150,000, Sir Rodolphe Forget will give $100,000.——British Columbia hospitals held their first convention during the past month. Practically all of the seventy-two hospitals in that province sent delegates. Dr. C. H. Gatewood gave the opening address, and Dr. Malcolm T. MacEachern, superintendent of the Vancouver General Hospital, gave the address to the delegates. Many subjects of interest to hospitals were discussed.——Lieut. E. R. Rutherford, M. C., Ottawa, is now commandant of Mowat Hospital, Kingston, Ont. The hospital is under the Soldiers' Civil Re-Establishment Commission.——Dry Island, near Morrisburg, Ont., owned by a New York millionaire, Mr. J. W. Corrigan, will likely be accepted by the Militia Department of Canada for use for convalescent soldiers. It is said to be well adapted for hospital purposes.

GENERAL

Tuberculosis Conference.—The sixth annual meeting of the Mississippi Valley Conference on Tuberculosis will be held at the Planters Hotel, St. Louis, October 2 to 4.

Information Concerning Women in Industry.—The Pennsylvania Department of Labor and Industry is circulating a questionnaire among industrial physicians in order to secure adequate data on employment of women in industry due to the war emergency. Copies of this questionnaire may be secured by addressing the chief of the Division of Industrial Hygiene and Engineering, Francis D. Patterson, Third and North streets, Harrisburg.

Cumberland Valley Medical Association.—The sixteenth annual meeting of the Cumberland Valley Medical Association was held at Waynesboro, Pa., September 5, and the following officers were elected: president, Dr. Jeptha E. Pitsnogle, Hagerstown, Md.; vice presidents, Drs. William D. Campbell, Hagerstown, Md., Samuel E. Mowrey, Mechanicsburg, Pa., and David F. Unger, Mercersburg, Pa.; secretary, Dr. John J. Coffman, Scotland, Pa. (reelected), and treasurer, Dr. John C. Gilland, Greencastle, Pa.

Sanitation and Housing.—The Committee on Welfare Work of the Committee on Labor, Council of National Defense, has made a report on village and public sanitation, which is published in *Public Health Reports*, Sept. 6, 1918. The committee consists of Dr. George M. Kober, Dr. John W. Kerr, Lawrence Veiller, Charles H. Verrill and Dr. William C. Woodward. This report, which is illustrated by plans and pictures, contains much valuable and practical information with reference to the housing and sanitation of rural workmen's areas. It should prove especially useful as a textbook for beginners in welfare supervision. The details set forth in the report should serve as a guide to executives in welfare work who have not specialized in rural sanitation.

Army Medical Experts Speak.—At a meeting of the American Academy of Political and Social Science at Philadelphia, September 20 and 21, rehabilitation of the wounded was discussed and the speakers included Dr. William W. Keen, Lieut.-Cols. Charles W. Richardson, Harry E. Mock, and James Bordley, Jr., M. C., U. S. Army, James P. Munroe, vice chairman of the federal board for vocational instruction; Brig.-Gen. Robert E. Noble, Major J. D. Todd, board of pension commissioners for Canada; T. B. Kidner, vocational secretary, invalided soldiers commissioner of Canada; Wallace Buttrick, president of the New York general education board; Douglas C. McMurtrie, director of Red Cross Institute for Crippled and Disabled Men; Michael J. Dowling, president of the Olivia State Bank, Minnesota, and James C. Miller of the federal board for vocational education.

Bequests and Donations.—The following bequests and donations have recently been announced:

Society for the Relief of the Destitute Blind, and Post-Graduate Hospital, New York City, $10,000; New York Eye and Ear Infirmary, New York Society for the Relief of Widows and Orphans of Medical Men, and Tuxedo Home, Tuxedo Park, N. Y., each $5,000 by the will of Marie Louise Tillotson.

Rush Hospital for Consumptives and Allied Diseases, Philadelphia, $10,000; and Children's Seashore Home, Atlantic City, N. J., $2,500, $1,000 of which is to be used endowing a free bed in the home, and $1,500 to endow a room for a woman and child, by the will of Annie Fassitt.

For the endowment of a bed in a hospital as a memorial to her mother and father, a dwelling located on Henley Street, Philadelphia, a small savings accumulation, a railway bond for $1,000, a $50 Liberty Loan bond and fifteen shares in a building and loan association, by the will of L. E. Koenig.

New York Physician's Mutual Aid Association, $500 by the will of Dr. Sidney L. Spiegelberg, New York City, who died recently in France.

Child Labor Bill.—Representative Keating of Colorado has introduced in Congress a bill, H. R. 12,767, to take the place of the federal child labor bill recently declared unconstitutional by a close decision of the United State Supreme Court. The bill was prepared by the National Child Labor Committee and the American Federation of Labor, and has the endorsement of President Wilson. The bill, it is said, embodies the standards of the old law very closely, prohibiting the labor of children of less than 14 years at any time, of children between the ages of 14 and 16 years for more than eight hours a day or at night in factories, and of children of less than 16 years in mines and quarries. The new law is based on the war power of Congress of conserving the man power of the nation, while the old law was based on the power of Congress to regulate interestate commerce. This bill, if it becomes a law, will prohibit the employment of children during the war and for a period of six months thereafter. It is said that the friends of federal protection for children are preparing a measure intended to be a permanent successor to the bill just introduced.

No Red Cross Seal Campaign.—According to the *Bulletin of the National Tuberculosis Association* for September a new form of financing tuberculosis work for the coming year has been arranged between the National Association and the Red Cross, by which the Red Cross Christmas Seal Campaign will be abandoned. This has been done in deference to the wishes of President Wilson and the Council of National Defense. The new plan of raising money for the Tuberculosis Campaign is to be by grant from the Red Cross amounting to $2,500,000, and the money is to be raised in a joint campaign for a universal Red Cross membership to be known as the Christmas Roll Call. An attempt will be made this fall to make this membership in the Red Cross as nearly universal as possible. The National Tuberculosis Association has been designated by the Red Cross as the agency through which the $2,500,000 fund will be distributed, and each state will be given as minimum an amount equal to the gross sale of Christmas seals for 1917. The Red Cross Christmas seal is still to be a distinctive feature, however, and each subscribing member is to be given a special packet containing educational literature on tuberculosis and ten Red Cross seals.

American Association for the Study and Prevention of Infant Mortality.—The report of the eighth annual meeting of the association, which was held in Richmond in 1917, is now being distributed. It is a volume of 327 pages divided into four parts, relating to pediatrics and obstetrics; eugenics and vital and social statistics and public school education; rural communities, nursing and social work and propaganda, and the reports of affiliated societies, with membership list and index. The articles, reports and discussions have been influenced largely in their welfare aspects by the war, and have increased significance and importance on that account. Some of them describe legislative and other governmental action of the allied countries, as well as of our own country, relating to infant welfare, and the work of the Children's Bureau and the other Red Cross activities in Paris, France, and Italy. The tone of the meeting throughout emphasizes more strongly than ever the extreme importance of the welfare of our future citizens on account of conditions brought about and to be brought about by the war. The volume should have a wide distribution. It may be obtained for $3 from Gertrude B. Knipp, executive secretary of the association, 1211 Cathedral Street, Baltimore.

BUENOS AIRES LETTER

Buenos Aires, Aug. 6, 1918.

Special Conference on Plague

The Sociedad de Higiene, Microbiologia y Patologia recently devoted a special session to study of plague in Argentina. Since this disease was introduced in 1899 there have been cases from time to time, but these were as a rule not very serious. The results obtained with antiplague serotherapy throughout the country have been good. Between 1900 and 1905 there were 204 cases thus treated, with 14.2 per cent. mortality. From 1905 to 1912 there were 664 cases, with 12.5 per cent. mortality. The highest death rate from plague was in 1906, amounting to 23 per cent., the lowest in 1912, with 7.3 per cent. mortality. The treatment employed was that which Penna has been advocating since 1900, which consists in a daily injection of 100 c.c. of antiplague serum, by the vein, until recovery. The results obtained with serums made from living bacilli do not seem to be any better than those realized with killed bacilli; with the latter, for instance, in 232 cases, 7.8 per cent. terminated fatally. There were only six cases of fulminating pneumonic plague. Bacteriologic examination gave positive findings only in from 12 to 16 per cent. of all the cases, but in the latest series, in 34 per cent. The examinations were made by puncture of ganglia or by biopsy. It was demonstrated that the focus for the cases observed was in certain zones of the port, and this emphasizes the necessity for intensifying the campaign of destruction against rats until the disease is stamped out. Occasionally foci of plague have appeared in the interior of the country. Some of the cases were of the grave pneumonic type, but these foci were readily brought under control and the disease never spread.

Death of Professor Ayerza

Dr. Abel Ayerza, professor of clinical medicine at the Facultad de Medicina of Buenos Aires succumbed recently to a brief illness. He was known especially for his study of *Cardiacos negros*. He gave this name to patients who developed progressive cyanosis in the course of chronic bronchitis or emphysema, and finally presented phenomena of asystole. Necropsy generally revealed lesions of sclerosis in the pulmonary artery. His latest work was on endemic regional chronic arsenic poisoning.

Pneumonia in Northern Argentina

Fibrinous lobar pneumonia has a very low death rate in most of the country, but in the northern provinces the death rate from it is high, reaching 20 or 30 per cent. As a number of cases have occurred recently in the 20th regiment, in garrison at Jujuy, the Departamento Nacional de Higiene decided to send a commission to study the disease on the spot, under the leadership of Professor Kraus.

Public Health Service Sends Commission to Study Epidemics

The commission sent by the National Public Health Service to study epidemic diseases in northern Argentina is under the leadership of Professor Kraus, director of the Instituto Nacional Bacteriologico. The other members of the commission are Drs. de la Vega, Battaglia, Barbara, and Fischer, with several bacteriologists, *guardas sanitarios* and attendants. The epidemic of pneumonia at Jujuy has almost completely died out, but the mortality reached 30 per cent.

In the Galpon and Molinos districts there have been cases suspicious of bubonic plague and the commission is to investigate these foci. A large squadron is equipped for rat destruction at these places.

The main interest for the expedition, however, is the investigation of typhus, for exanthematous typhus has never been reported before in Argentina. The suspicious cases which the commission is to study have occurred at Iruya, near the frontier of Bolivia, in a poor, mountainous zone with little communication with the outside.

South American Conference on Hygiene, Microbiology and Pathology

The committee of organization for this approaching scientific gathering, to be presided over by Professor Couto, has decided on Rio de Janeiro for the inaugural session. It will convene Oct. 15, 1918. The previous meeting was held at Buenos Aires in September, 1916, and the works presented have been published in a volume. All the South American countries have been invited to the approaching conference.

Reform in the Statutes of the State Universities

The movement for reform in the management of the universities, for which the professors and students of the universities have been keeping up an agitation, has culminated in a bill presented by the president of the republic to congress for deliberation and action. The bill coincides in general with the demands of those contending for reforms. It provides that the dean shall be elected by the professors, he shall serve four years and cannot succeed himself. The election will be by a council of seven members, one representing the professors, one the students, one the alumni, and the others the professors. A time limit for service is imposed, and the subject of free lectureships, the *docencia libre*, is to be regulated.

Gliosis of the Retina

In the June issue of the *Revista de la Asociacion Medica Argentina*, Dr. R. Argañaraz calls attention to the fact that the disease known as diffuse teleangiectatic gliosis of the retina was described by Dr. P. Lagleyze in the *Revista Argentina de Oftalmologia practica*, 1883, **1**, 3. His communication was accompanied by a colored plate. The disease is credited, as a rule, now to von Hippel.

Ozena

The microbe described by Perez as the causal agent of ozena was studied four or five years ago by Hoffer of Vienna. He confirmed the characteristic fetid odor of the cultures of this germ, and after intravenous injection in rabbits, refound the germ in the nostrils of the rabbits. Some of the animals presented thereafter atrophy of the turbinates, and all showed an intense congestive reaction in the turbinates.

On the basis of these researches, Dr. S. Mazza in Buenos Aires has been experimenting with vaccination against ozena. The first results seemed to have been good as the odor disappeared, the amount of crusts seemed much reduced, and some of the patients were cured. In 1916, Dr. Perez repeated his early experiments, but although the turbinates in the rabbits showed intense congestion after intravenous injection of cultures of his microbe, he was unable to detect any atrophy of the turbinates. Trophic lesions developed in the ears, but these, of course, are not specific. Dr. Perez, and later Dr. Zanolli, isolated from the nasal fossas of ozena patients a certain number of germs with similar cultural characteristics, fetid odor, etc., but they could all be distinctly differentiated. They called these germs para-ozena microorganisms.

Repeated tests of vaccine therapy by means of Perez' microbe resulted in a very limited number of cures, and the improvement noted in other cases proved briefly transient, even when such large doses were injected that congestion and epistaxis followed.

Taking into account that Perez' microbe is found only in a small percentage of ozena patients, and that the nasal reaction in the rabbits can be obtained with other micro-organisms, it seems difficult, to date, to assign formal importance to this bacterium as the causal agent of ozena.

As to vaccine therapy, it would be better to try it on a large scale with not only the Perez microbe but with the paraozenous and other bacteria encountered in ozena.

LIMA LETTER

Lima, Peru, Aug. 24, 1918.

Influenza in Peru

The famous "Spanish grip" has been manifesting itself in some of the mining districts of the interior. The principal centers of the epidemic have been at Smelter, Cerro de Pasco and Morococha, important mining centers in the hands of powerful North American companies. The epidemic was so general that the mining and smelting works had to be shut down. More than 5,000 presented the disease, but the mortality reached only 0.75 per cent.

Bubonic Plague in Peru

There seems to be a recrudescence of bubonic plague along the coast, principally in Callao and Trujillo. There have been a total of 11,905 cases of bubonic plague in Peru since 1902, with 6,156 deaths. They were all in the coast provinces, and the largest numbers of cases, 4,444, and 2,176 were in the northern province of which Trujillo is the capital, and in the Lima province, but none of the coast provinces were entirely exempt. From a total of 172 cases in 1903, the numbers progressively increased to 1,169 and 1,700 in 1907 and 1908, and then gradually decreased to 892 in 1912, and since then to 444 in 1917, the mortality keeping very close to 50 per cent. each year.

Infant Welfare Work in Peru

Parliament is deliberating at present on more comprehensive legislation for protection of infants. The prevailing opinion is in favor of creating a fiscal fund to provide an income which will be distributed among the public institutions of the country, run by the Beneficencia publica, for the purpose of establishing "dispensaries for infants," on the type of the "Drop of Milk" stations. Half a million soles (about $250,000) is to be set apart for this object.

Scarcity of Drugs

As a consequence of the scarcity of drugs, determined by the war, the lack of medicines has begun to be appreciably felt at Lima and elsewhere throughout Peru. The infant industry of drugs "made in Japan" is taking advantage of the opportunity to conquer the place, and at present many products are coming from Japan which formerly used to come from Europe and even from the United States. Among them are quinin, the salicylates and benzoates, glycerin, and many more. There is a recrudescence of malaria along almost the entire coast and the price of quinin is so high that arrangements should be made to render this product more easily procurable.

LONDON LETTER

London, Aug. 20, 1918.

Influenza Epidemics

The influenza epidemic described in recent letters has completely disappeared. The health officer to the London County Council, Dr. Hamer, in his annual report deals with the influenza epidemics of the past. He points out that ever since the institution of registration, influenza, bronchitis and pneumonia as causes of death have shown increases from time to time, as though in response to the stimulus of an epidemic influence; in other words, the great influenza outbreak of 1847-1848; the succeeding minor prevalences of 1851, 1855, 1858, 1862-1863, 1869 and 1875; the following pandemic of 1890, with the subsequent epidemic waves of 1891, 1892, 1895, and 1900, and the lesser waves of 1908-1909 and of more recent years have all been accompanied by an increase in the number of deaths returned as due to bronchitis and pneumonia. In addition to the well-known type with respiratory complications, influenza has presented from time to time gastro-intestinal and nervous types, and during recent years, in London, the welling up in each first quarter of the year of deaths attributed to influenza and to respiratory diseases has been accompanied by a corresponding increase in the number of deaths ascribed to cerebrospinal fever. There has been apparent in London for some years past an approximation or merging into one another of the prevalences of illness attributed in the earlier months of each year to cerebrospinal fever and later in the summer months diagnosed as poliomyelitis. The question thus arose and has been discussed in the annual reports for 1914, 1915 and 1916, as to the need from an epidemiologic point of view for associating the prevalence of influenza not only with illness in which respiratory and gastro-intestinal complications are present, but also with illnesses in which disturbances affecting the central nervous system predominate. It has, in fact, become apparent that it is now necessary to consider the desirability of enlarging the present connotation of the term "influenza." Dr. Hamer is inclined to attribute to influenza the recent epidemic of acute encephalitis (The Journal, June 22, 1918, p. 1963); but the view advocated by Prof. Arnold Netter given in the Paris letter (p. 1964) has been gaining ground: that this epidemic is a new disease in this country, though previous outbreaks, such as that in Italy in 1890, have been recorded.

Australian Fund for Physicians Disabled in the War

The Australian branches of the British Medical Association are considering how to raise a fund to assist the dependents of members who become disabled or who are killed on active service, and also to assist the disabled members themselves. The results of the war so far have shown that the majority of physicians return to their practices without grave disability. But they have suffered large pecuniary loss by leaving, and many have had difficulty in reinstating themselves. The loss of the men who have become disabled is, of course, a very different one. It is estimated that about 1,000 Australian physicians have joined the army. The number killed exceeds sixty. Of those who have received incapacitating wounds, no figures are at present available. It seems that when the mortality of men serving in the field is high the disablement rate is low. It has been suggested that each member of the British Medical Association in Australia be asked to contribute $75 a year for three years. If 2,000 physicians would contribute this amount, the fund would be large enough to place $1,500 at the disposal of 100 men, and the interest payable would provide $500 a year for fifteen disabled men or the widows of men who have been killed.

Colored Physicians and the War

One of the effects of the war has been a great increase in two classes of physicians that previously formed only a small minority of practitioners—women, and foreigners of various kinds, including colored persons. Owing to the great shortage of British physicians, a considerable proportion of the resident staff of the hospitals are Indians or other persons of color. A recent appointment is that of Miss Martha Hunter Hoa Hing, a Chinese medical woman, who has been chosen house surgeon at the Alexandra Hospital for Children, Brighton. Miss Hoa Hing has been in England for seven years, and has a brother in the British army. She took the diplomas L.R.C.P., and L.R.C.S., Edinburgh, and L.R.F.P.S., Glasgow, in 1916. The circumstances in which institutions now find themselves when a vacancy on the medical staff arises is typified by the case of Shoreditch, a London borough. In answer to their recent advertisement for an assistant medical officer, all the applications received, apart from a Chinese, were from colored medical men.

Allied Food Plans

The committee of representatives recently established by the Inter-Allied Food Council (consisting of the food controllers of France, Italy, the United Kingdom and the United States) is thus constituted: chairman, Sir John Beale, United Kingdom; Major the Hon. W. Astor, M.P., and Mr. W. H. Beveridge, C.B., and Capt. J. R. Brooke; United States, Mr. J. P. Cotton and Mr. L. P. Sheldon and Mr. G. S. Jackson; France, Major R. Fillioux, M. Genestal and M. Destombes; Italy, Commendatore Professor Attolico, C.B., Signor Nimmo and Lieut. Amadio. The secretary is Mr. Franklyn L. Turner, C.B., and the offices are at Trafalgar House, Waterloo Place, London, S. W. This committee may be regarded as one of the first fruits of Mr. Hoover's recent visit to London. The whole question was thoroughly discussed at the conference of the Allied food controllers, and the result has been the setting up of an organization to provide for more coordination in securing the food supplies of this country and our European allies. Instead of isolated methods of purchase for each individual country, without regard to the requirements of its neighbors, one general program of purchase and importation for all the countries will be evolved which will take into account on one side the needs and home production of each country and, on the other, shipping facilities, financial arrangements and the actual supplies of food likely to be available for export to Europe. Executives representing France, Italy, the United Kingdom and the United States were already in existence for the purpose of scheduling the Allied requirements of the principal foodstuffs, such as cereals, meat and fats, oils and oil seeds, and sugar. These executive organizations will remain, but they are now placed under the control of the new committee of representatives, which will coordinate the different programs into one general scheme and will be responsible for carrying it into effect.

Bubonic Plague in the Thames

The steamship *Hector* arrived at Gravesend from Calcutta with four members of the crew suffering from bubonic plague. Another member of the crew is ill, but the nature of his illness has not yet been determined. All the patients have been removed to the London Port Sanitary Authority's Isolation Hospital at Denton. Several dead rats had been found in a store room on the ship during the voyage. The crew has been temporarily removed from the vessel, the quarters fumigated, and all clothing and bedding have been disinfected. The vessel will be disinfected, all rats destroyed, and the cargo discharged into lighters under supervision of the health officer of the Port of London Sanitary Authority.

The Canadian War Museum

The opening of the war museum at the Royal College of Surgeons was described in THE JOURNAL, Nov. 10, 1917, p. 133. A section belonging to the Canadian Army Medical Corps has been opened by Sir Robert Borden, prime minister of Canada. Sir George Makins, president of the Royal College of Surgeons, in welcoming Sir Robert, said that at the beginning of the war they were very ignorant of the kind of injuries they would have to treat, as collections and drawings had not been kept in earlier wars. The government had taken an interest in this matter, and the army medical collection of war specimens had been arranged by the conservator, Prof. Arthur Keith, with the assistance of Prof. S. G. Shattock and Mr. Cecil Beadles. They had now a record of this war which would be of the greatest assistance to the army medical corps. It was intended that Canada should possess an equally representative collection.

Sir Robert Borden said we should not fulfil our duty in the war without gathering its lessons in surgery. He had observed three years ago that in British and French hospitals very careful case records were kept, which would be of great future service to the medical profession. In the collection he had inspected that day he saw these records in another form. It was a source of great gratification that the Canadian Army Medical Service had been of such assistance. The matter had been brought to his attention about a year ago, and the Canadian government had encouraged this work. He was glad to know that at the end of the war Canada would have as good a collection as the whole war museum he was now inspecting.

PARIS LETTER

PARIS, Aug. 8, 1918.

Antitoxic Serum for Gas Gangrene

A very interesting discussion was held on this subject at a recent meeting of the Société de chirurgie de Paris. Drs. Pierre Duval and E. Vaucher cited the results which they obtained from the use of serums prepared by Weinberg and Séguin: antiperfringens serum; antiedematiens serum, and antivibrion septique serum. These serums were used for the first time in 1917 in fifty cases. Of these fifty patients, twenty-five died within the first twenty-four hours after being wounded as the result of severe multiple wounds, but without presenting any signs or symptoms of gas bacillus infection. The remaining twenty-five patients lived and were watched for from eight days to four weeks. When they left the sanitary formation, all danger of gas bacillus infection was passed. As a rule, the serum was injected in from five to six hours after the wounding; sometimes more time elapsed. The serum was administered in 10 c.c. doses.

After the last battle in Flanders, Duval and Vaucher injected thirty-seven wounded soldiers. These men were seen not later than six hours after being wounded, and they were at once given an injection of from 30 to 100 c.c. of a mixture of equal parts of the three serums mentioned above. On the basis of their experience, Duval and Vaucher are convinced that this prophylactic treatment is wholly justifiable. The injections should be made as soon as possible after the wound. The injections should not be made at the level of the traumatized muscles (because these muscles are no longer vascularized, hence the serum cannot penetrate them), and serum therapy never should take the place of or delay surgical treatment of the wound. It seems advisable that prophylactic serum therapy should be adopted in the army; the preventive injections of mixed serums should be given at the *postes de triage* in the same manner as antitetanus inpections are given.

Dr. Pierre Delbet reported a case in which the use of an antigangrene curative serum was followed by a cure. The soldier reached Delbet's service twenty-four hours after being wounded, with the gas gangrene fully developed (toxic form) in one of his arms. Prophylactic serotherapy is still more effective. Its use has been interfered with, however, by a series of quarrels among the laboratories and because of poor technic.

Dr. L. Bazy insisted on the difficulty of making a bacteriologic diagnosis at the time. It is a lengthy procedure but, nevertheless, a necessary one as clinical differentiation of the various forms of gas gangrene is impossible as yet. The result is that in order to make serotherapy effective, a serum must be used which contains the antitoxins of all the bacteria which may be the cause of gas gangrene. As a matter of fact, it is sufficient to consider only the principal causes of gas gangrene, namely, the vibrion septique and the perfringens, making a mixture of these two serums. The action of such a serum would be still stronger if there could be added to it antipyogenic serums, especially antistreptococcus serum, because these pyogenic organisms create conditions in the wound which are favorable to the subsequent development of gas gangrene. It is this idea which led Leclainche and Vallée to make their polyvalent serum.

Interallied Medical Society at Tours

An interallied medical *cercle* has been formed at Tours. The first meeting was held July 9.

Canadian Mission in France

A mission headed by Colonel Combe and Dr. Lure has been sent to France by the Canadian government for the purpose of studying the measures that have been taken in reconstruction work among the maimed and the invalided.

Cultivation of Medicinal Plants

The *Comité des plantes médicinales* recently visited the places where medicinal plants are grown and prepared for pharmaceutical use. At the farm de Vintre, near Etrechy, and at Milly (departement de Seine-et-Oise) the committee, under the direction of M. Gabriel Bertrand, professor in the Faculté des Sciences de Paris, saw most interesting experimental cultivations, testifying to the remarkable efforts made by French scientists and scientifically trained agriculturists to free France from the quasi-monopoly which the enemy had arrogated to itself before the war. New centers of cultivation, created in the abandoned territory, are in process of organization, some in the central region, others in the southwest.

Bombardment of an American Hospital

The hospital of the American Red Cross at Jouy-sur-Morin (departement de Seine-et-Marne) was bombarded, July 15. Two men attached to the sanitary service were killed; nine persons were injured.

The Milk Supply

In order to assure a sufficient supply of fresh milk for the civil population, especially the children, the old and the sick, during the coming winter, M. V. Boret, minister of agriculture and food commissioner, has taken certain measures. The shortage of milk is due almost entirely to the intensive production by the industries which transform milk to some other product, such as butter, concentrated milk, cheese, etc. The cheese manufacturers have not ceased to extend their production, using more and more milk all the time, thus sending the prices higher and higher for a food of prime necessity. It seems inevitable that the cheese-making industry must be regulated in order to conserve the supply of fresh milk and to keep the price within normal limits. Therefore, M. Boret has asked the prefects to advise him of the quantity of milk that is needed by each *centre de consommation*, those which seem to be assured for the next winter, and those which must be provided for by the limitation of the use of milk by the local factories.

Marriages

Lieut. Earle Cerenius Winsor, M. C., U. S. Army, Rockwell's Mills, N. Y., on duty at Barron Field, Fort Worth, Texas, to Miss Savalla O. Cornell, also of Rockwells Mills, July 20.

George William Hawk, Sayre, Pa., to Miss Helen Victoria Brown, at Tilsonburg, Ont., July 29.

Perry H. Wessel to Miss Vera May Cooper, both of Moline, Ill., September 4.

Deaths

Meyer L. Heidingsfeld, Cincinnati; Medical College of Ohio, Cincinnati, 1895; aged 46; a Fellow of the American Medical Association; and secretary of the Section on Cutaneous Medicine and Surgery in 1907; formerly president of the Cincinnati Society for Medical Research, and chairman of the Dermatological Section of the Ohio State Medical Association; a member of the Mississippi Valley Medical Association; professor of dermatology and syphilis in the University of Cincinnati; dermatologist and head of the department in the Cincinnati General and Jewish hospitals; died in the Jewish Hospital, Cincinnati, September 3, from abscess of the spleen following typhoid fever.

Emmanuel Persiliar Lachapelle, Montreal, who died last month, aged 73, was dean of the medical department of Laval University, and also president of the board of public health for the province of Quebec since its organization in 1887. He was a graduate of the University of Victoria College, Coburg, Ont., in 1869; took an active part in the organization of the profession in his district and was one of the founders and editors of the *Union Médicale du Canada.* In 1894 he was elected president of the American Public Health Association, and was the representative from Canada at various international medical congresses.

John Dallas Erdman, Allentown, Pa.; University of Pennsylvania, Philadelphia, 1872; aged 68; at one time a Fellow of the American Medical Association; a member of the Medical Society of the State of Pennsylvania; at one time president of the Lehigh County Medical Society; president of the Allentown school district, and later of the board of education; died in the Sacred Heart Hospital, Allentown, September 6, from injuries received by being run down by an automobile, August 27.

Capt. Hoddie Wilbur Daniels, M. R. C., U. S. Army, Elkins, W. Va.; Baltimore Medical College, 1894; aged 46; a Fellow of the American Medical Association; for eleven years a member of the city council of Elkins, and health commissioner of the city; a specialist in anesthesia; who was on duty on the Western Front is reported to have been killed in action.

Capt. Samuel Oscar Brumbaugh, M. R. C., U. S. Army, Huntingdon, Pa.; University of Pennsylvania, Philadelphia, 1886; aged 53; a Fellow of the American Medical Association; is reported to have committed suicide in the office of a physician in Baltimore, September 6, by severing an artery in the wrist.

Edmund Townsend, Fairport, N. Y.; University of Buffalo, N. Y., 1885; aged 57; recently a surgeon on a steamer in the merchant service; who was operated on at the Primrose Hospital, Batavia, N. Y., in the early spring; died in Washington, D. C., September 4, from carcinoma of the stomach.

James Robert Ware, Greenville, S. C.; Jefferson Medical College, 1895; aged 45; at one time a Fellow of the American Medical Association; a member of the South Carolina Medical Association; for two terms a member of the city council; died at his home, September 1.

Peter Byrnes, Chicago; Jenner Medical College, Chicago, 1906; aged 58; formerly a member of the Illinois State Medical Society; at one time a member of the staff of St. Elizabeth's Hospital; died on a street car in Chicago, September 11, from cerebral hemorrhage.

Edward B. Weston, Chicago; Rush Medical College, 1873; aged 72; for many years well known as a practitioner of Chicago, and head of the local archery association; died in the Home for Incurables, Chicago, September 14, from chronic interstitial nephritis.

Leon L. Love, Tacoma, Wash.; Missouri Medical College, St. Louis, 1888; aged 62; a Fellow of the American Medical Association; and in 1912 president of the Washington State Medical Association; once health officer of Tacoma; died at his home, September 1.

Harry S. Kiskadden, Detroit; College of Physicians and Surgeons, Chicago, 1885; aged 61; who was seriously injured in an automobile accident at French Landing, August 30; died from his injuries at Bayers Hospital, Ypsilanti, Mich., September 2.

Aaron Shelmon Warner, Baltimore; College of Physicians and Surgeons, Baltimore, 1881; aged 62; once coroner of the twelfth district of Baltimore; died at his home in Highlandtown, Baltimore, September 5, from tuberculosis of the spine.

John Aloysius Chard, Jersey City, N. J.; New York University, New York City, 1897; aged 54; a member of the Medical Society of New Jersey; physician to the City and German hospitals, Jersey City; died at his home, August 31.

Anne Wilson Nixon, Pasadena, Calif.; Cooper Medical College, San Francisco, 1892; aged 76; a Fellow of the American Medical Association; formerly physician to the Hollenbeck Home, Los Angeles; died at her home, recently.

Edward L. Carlton, Columbus, Ohio; Starling Medical College, Columbus, Ohio, 1865; aged 79; a member of the Ohio State Medical Association, and a veteran of the Civil War; died at his home, September 5, from heart disease.

Horace Lester Kutchin, Columbus, Ohio; University of Tennessee, Nashville, 1884; Rush Medical College, 1886; aged 62; died in Mount Carmel Hospital, Mount Gilead, Ohio, September 2, after a surgical operation.

G. J. Stapleton, Lockney, Texas; Memphis (Tenn.) Hospital Medical College, 1889; a member of the State Medical Association of Texas; died in Lockney, September 2, after a surgical operation.

Fletcher Armitage Gary, Vernon, N. Y.; Detroit Medical College, 1870; aged 71; for three terms president of the village of Vernon and for several years school trustee; died at his home, August 30.

Franklin T. Beattie, San Ana, Calif.; formerly of Shushan, N. Y.; University of Vermont, Burlington, 1887; a member of the Medical Society of the State of New York; died at his home, August 18.

John Lephakis, San Francisco; National University, Athens, Greece, 1899; aged 40; was found dead from a gunshot wound of the head, August 30, on a road between San Mateo and Half Moon Bay.

Joseph B. Johnston, Graniteville, R. I.; Baltimore Medical College, 1896; aged 58; health officer of Johnston, R. I.; for many years a druggist of Providence; died at his home, about September 3.

Carl Wagner, Milwaukee; University of Würzburg, Germany, 1892; aged 53; a Fellow of the American Medical Association; died suddenly in Chicago, August 30, from heart disease.

Willets S. Cossitt, Detroit; Wisconsin College of Physicians and Surgeons, Milwaukee, 1896; aged 59; died in a street car in Detroit, August 25, from acute dilatation of the heart.

Oscar C. Whitacre, Springfield, Ohio; Eclectic Medical Institute, Cincinnati, 1896; aged 61; died in Springfield, August 26, from cerebral hemorrhage.

Chapman W. Jones, Appomattox, Va.; College of Physicians and Surgeons, Baltimore, 1894; aged 49; died in Greensboro, N. C., August 23, from diabetes.

Belmont W. McBee, Paw Paw, W. Va.; University of Louisville, Ky., 1894; aged 52; died at his home, about August 18, from peritonitis.

James Thomas Gault, Atlanta, Ga.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1898; aged 41; died in Atlanta, August 23.

T. P. Johnston, Everton, Ark. (license, Arkansas, 1903); aged 60; died at his home, September 2, from cerebral hemorrhage.

Maria Vincent Maxwell Scollay, Brooklyn; Eclectic Medical College of the City of New York, 1896; died, September 3.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

CAMPETRODIN AND CAMPETRODIN NO. 2

Report of the Council on Pharmacy and Chemistry

The following report on Campetrodin and Campetrodin No. 2 has been adopted by the Council and its publication authorized. W. A. PUCKNER, Secretary.

The following report of the A. M. A. Chemical Laboratory on "Campetrodin" and "Campetrodin No. 2," sold by the A. H. Robins Company, Richmond, Va., was submitted to the Council by a referee of the Committee on Pharmacology:

Campetrodin and Campetrodin No. 2, Double Strength, are called "ethical medicinal specialties" by the A. H. Robins Company, Richmond, Va., which sells them. An advertisement in the *Maryland Medical Journal* (December, 1917) contains the following claim for composition:

> "CAMPETRODIN (Made in Two Strengths of Iodine). This preparation is an Oleaginous Solution of Iodine in Camphor."

A booklet describing the "specialties" of the Robins Company contains the following in reference to Campetrodin: "Composition: Camphor, Iodine Element, Oleaginous Solvent." From this it appears that the preparations are claimed to contain elementary (free) iodin in an "oleaginous solvent." Since free iodin, as is well known, readily combines with fats, it was decided to determine the form in which the iodin was present in these preparations. The examination demonstrated that both preparations contained but a trace of free iodin. On steam distillation there was obtained from both preparations a distillate amounting to about 35 per cent. by volume which had an odor strongly suggestive of turpentine, while the residue contained the iodin and had the characteristics of an iodized fatty oil.

Quantitative determinations indicated that Campetrodin contained approximately 0.03 per cent. of free iodin and 1.3 per cent. of iodin in combination with the fatty oil. Campetrodin No. 2, Double Strength, contained approximately 0.03 per cent. free iodin and 2 per cent. of iodin in combination with the fatty oil.

Thus, contrary to the published statements, Campetrodin is *not* a preparation of free (elementary) iodin and Campetrodin No. 2, Double Strength, does *not* contain twice as much iodin as Campetrodin.

The report of the Chemical Laboratory shows that the statements made in regard to the composition of Campetrodin and Campetrodin No. 2 are incomplete in some respects and false in others. In view of the Laboratory's findings it appears superfluous to inquire into the therapeutic claims made for the preparations: It is evident, however, that a solution containing practically no free iodin is not, as claimed by the Robins Company, "adapted for use wherever . . . iodin is indicated externally. . . ."

It is recommended that Campetrodin and Campetrodin No. 2 be declared inadmissible to New and Nonofficial Remedies because of false statements as to chemical composition and therapeutic action, constituting conflicts with Rules 1 and 6.

The Council adopted the recommendation of the referee and authorized publication of this report.

EATONIC

"Eatonic" is "distributed" by the Eatonic Remedy Co., Chicago. If one believes the claims of the Eatonic concern—and we do not recommend this—"the Advanced Scientific Thought of the Medical World has been called upon to produce Eatonic"! Here are some of the claims *made for* Eatonic in newspaper advertisements, which, by the way, are not subject to the penalties which control claims made for medicinal products on the trade packages:

> "INSTANTLY relieves HEARTBURN, BLOATED, GASSY FEELING, STOPS acidity,
> food repeating, and stomach misery."
> "AIDS digestion; keeps the stomach sweet and pure."
> "Eatonic is the BEST remedy . . ."
> "Sponge up the excess acids and poisonous fluids from the stomach
> by chewing these compressed compounds—stomach pains guaranteed to
> leave at once."
> "Removes Indigestion, Bloat, Heartburn, etc."

In the trade-package the claims are more cautious. We do not find there that it "*instantly* relieves heartburn, bloated, gassy feeling," etc., but we do find:

> "Intended for the relief of . . . Heart Burn . . . Gassy, Windy, Bloated Stomach . . ."

Which, of course, is *different*! The Eatonic Remedy Co. might say with equal safety that their tablets were "intended for" the reduction of the national debt, or the repairing of automobile tires. There is nothing to prevent a manufacturer from declaring what his product is "intended for." And who could resist the lure of this:

> "Be a good liver—while you live. You don't have to live on a
> Death Diet, but eat what you like and be normal. Remember, Eatonic
> drives the gas out of your body—and the bloat goes with it. It stops
> the super-acidity—that is, too much acid—that causes nearly all stomach
> trouble."

At the request of the Propaganda Department, the Chemical Laboratory of the A. M. A. took up Eatonic for investigation. Here is its report:

CHEMISTS' REPORT

Eatonic is in the form of black, uncoated tablets, having a mintlike odor, and a sweet and mintlike taste. Each tablet is stamped "Eatonic" and each weighs about 27.4 grains. A qualitative examination showed Eatonic to contain calcium, magnesium, carbonate, sugar, charcoal and silica or a silicate. The odor and taste suggested peppermint. As no soluble carbonate could be detected, the calcium and carbonate are probably present as calcium carbonate. The qualitative examination indicates that Eatonic is composed of calcium carbonate, charcoal, sugar, and oil of peppermint as flavoring. From this examination, and from the quantitative determinations carried out, we conclude that Eatonic is essentially calcium carbonate 20 parts, sugar 55 parts, charcoal 12 parts in a hundred. The remainder is flavoring, and material undetermined. Each tablet contains approximately 5.5 grains calcium carbonate, 15 grains sugar, and 3.25 grains charcoal.

This, then, is the best that the "Advanced Scientific Thought of the Medical World" could do:

Calcium carbonate (chalk)	5½ grains
Sugar	15 grains
Charcoal	3¼ grains

Surely the labors of such a mountain have brought forth a ludicrously insignificant mouse! Summed up, it may be said that "Eatonic" is a simple and innocuous tablet of the antacid type. It will do nothing that cannot be done equally well by the well-known "sodamint tablets." The latter, being nonproprietary, and therefore competitive, are sold at a fraction of the cost of "Eatonic" while the incentive to force them on the public under false and misleading claims is reduced to a minimum.

Health Standards and Care of Immigrants.—The Carnegie Corporation has undertaken a national study of the methods of Americanization of immigrants in the United States. The work is to be done by ten divisions, and of these the division on health standards and care is under the direction of Michael M. Davis., Jr., director of the Boston Dispensary. The aim of this division is to learn what the health agencies throughout the country are doing to keep the immigrants up to American standards of health. The division desires the cooperation of individual physicians, hospitals, dispensaries, health departments, nursing and medical associations, industries, and all other national organizations working to promote the public health. Information is sought concerning health conditions and problems among the foreign-born of different races in different localities.

Correspondence

ORIGIN OF THE TERM "NEUROCIRCULATORY ASTHENIA"

To the Editor:—An article by Drs. Morris and Friedlander in The Journal (Aug. 3, 1918, p. 375) calls my attention again to a misunderstanding arising out of an error in publication. The article that appeared under my name in the *Military Surgeon* (1918, **42,** 409) was written by the American medical officers who were then attached to this hospital. They were Capt. B. S. Oppenheimer, Lieut. M. A. Rothschild, Lieut. S. A. Levine, Lieut. F. Wilson, Lieut. R. Morison and Lieut. St. Lawrence. The article was sent to press under their names, but at their request I added a short "foreword." Through an editorial blunder, as I am informed, the article appeared wrongly under my name. Though I am in agreement with the main arguments of the writers, as indicated by the foreword that I wrote, I naturally cannot assume responsibility for statements which are in reality theirs; that would be unfair both to the real authors and to myself. Thus the term "neurocirculatory asthenia," which is used by them to describe the condition of certain invalided soldiers, is not of my making. Let me not be misunderstood; I express no objection to nor criticism of the term; at the same time I do not adopt it to designate the condition.

Thomas Lewis, M.D., Military Heart Hospital,
Colchester, England.

VOLUNTEER MEDICAL SERVICE CORPS

[Two weeks ago The Journal (September 7, p. 845) published in Queries and Minor Notes letters and answers relative to the Volunteer Medical Service Corps. These prompted the correspondence that follows:]

FROM PHILADELPHIA

To the Editor:—There are two things about your reference in the issue of September 7 regarding the Volunteer Medical Service Corps: one is the publication of letters over initials only of the writers without specific address, and the other is your unfavorable reference to the idea of a corps of this character. I am not in a position to know, but would regard your strictures as based on some personal or collective feeling in the matter. However, I am wearing a button and have felt happy in the thought that at my age [61] I have agreed to do any service to the government in the medical or surgical line it is commanded that I shall do during the war. Your fault finding with the plan makes me a little unhappy. I agree so generally with The Journal in its views that I must protest against this apparently grouchy complaint of yours. Evidently the plan has met with the approval of the Medical Department of the Army. Why, therefore, this condemnation? Perhaps more elucidation on your part will satisfy my curiosity as to how it is, as one correspondent, "W. E., Michigan," says, "Martin and his elements seem to be pushing things with a high hand," etc.

Gordon M. Christine, M.D., Philadelphia.

FROM ST. LOUIS

To the Editor:—As a Fellow of the American Medical Association who takes due pride in the organization, I am constrained to express my regret at the tone of your correspondents' notes and your answer concerning the Volunteer Medical Service Corps (The Journal, Sept. 7, 1918, p. 845).

At any other time, the expression of personal pique against Dr. Franklin H. Martin might be either sublime or ridiculous, according to the point of view. At present, when combined with your attack on the Council of National Defense, it constitutes at least betrayal of the loyal attitude of the membership of the American Medical Association, if it does not actually give aid and comfort to the enemy.

You should know that the Volunteer Medical Service Corps was originated to give some degree of recognition to the physicians who must remain at home. We find here that Illinois physicians are as anxious for this distinction as are those in other states where the Medical Section, Council of National Defense, is fully organized.

May we hope for some expression that will remove the disgrace caused by your thoughtless reply?

W. H. Luedde, M.D., St. Louis.

FROM ELMIRA, N. Y.

To the Editor.—The "Volunteer Medical Service Corps" merits much plainer discussion than The Journal has seen fit to devote to it.

In Elmira, for example, we had only a handful of doctors in the Medical Reserve Corps, U. S. Army. We needed stimulation or something. So Major C. A. L. Reed was sent here to enable any physicians so inclined to be examined for commissions without inconvenience to themselves. The local representatives of the Volunteer Medical Service Corps gave out to the press, and there was duly published, a statement that all physicians were compelled to apply for commission or enroll in the stay-at-home-and-wear-a-button corps. The chairman of the local committee of the Volunteer Medical Service Corps called a meeting of physicians, and in his address stated emphatically that the matter of applying for a commission or enrolling in the organization was "not an invitation, but a command." He gave to the press a signed statement declaring that he had "received orders from the Office of the Surgeon-General to place the matter before the physicians of this community."

Most of the physicians swallowed hard, and believed they had no choice in the matter. The papers next announced to the public that "only one Elmira physician had failed to enroll, although enrolment is compulsory, and his name will be forwarded to Washington."

His name has been forwarded to Washington, all right, but not in the unpleasant way the Volunteers to Stay At Home would have it. I think—I fear, I should say—that I am the one who put the question mark after the first word of the title of this Wear a Button and Ease Your Mind Corps. At least I frothed at the mouth to a considerable extent in the public prints in "a foul, pro-German effort" to make it known that there is nothing compulsory about applying for a commission in the U. S. Army or about joining an organization of those who are going to stay home as a large and enthusiastic body of patriots.

Every doctor with any self respect ought to be competent to decide for himself what his duty is at present. And surely no physician in America would require the counsel, advice or command of any organization, or even its insignia or moral support, to make him jump at the opportunity of rendering any service which his government might ask of him, at home or abroad.

The Volunteer Medical Service Corps' activity in Elmira adds weight to the argument of experienced Army men that it is unwise to grant medical officers too much rank. Here we have a quasi-official organization actually attempting to conscript the medical profession and control each individual's conduct for the duration of the war and afterward. It looks to me as though the illustrious Martin and his numerous brood of FACSimiles are seizing the present time to promote a great scheme to gain control of the medical profession.

As a private citizen I can still criticize high officials, and from the way in which the Surgeon-Generals and the Surgeon-Generals' Offices are being used to lend an air of authority to the promoters of this Volunteer-Compulsory Guild—well, I should think the Surgeon-Generals would have enough to do without wasting time and energy puttering with a sunshine circle.

The other day an Elmira doctor, 34 years of age, received his commission in the Medical Reserve Corps, U. S. Army, and left for camp.

The newspapers announced the fact, and tacked on the item this flattering comment: "Dr. ———— applied for his commission at the time enrolment of physicians became compulsory."

That makes a man hesitate about accepting a commission just now. It no doubt pleases the FACSimiles to see how well the Volunteer Medical Service Corps is working out its problems.

The Journal should handle this question without gloves. This gratuitous organization is working a great deal of harm, and beyond any doubt its quasi-official rulings as to eligibility encourage many a doctor, who is wavering, in the belief that it is not his duty to get into the service. Its entire program is harmful to the best interests of the country and of the profession, in precisely the same way that the Red Cross is injured by the type of woman that wears the uniform of the Red Cross nurse for show purposes. Just now it is merely a question of button, button, who's got the button—or rather who hasn't. But if the thing goes on, first thing we know the doctor who stays at home because he must or will is going to have a lovely uniform to wear as evidence of his great sacrifice.

William Brady, M.D., Elmira, N. Y.

FROM WALDOBORO, MAINE

To the Editor:—In July, immediately after the request from the President of the American Medical Association to do so, the writer undertook through the presidents and secretaries of the county medical societies of this state a survey of the medical situation. This has been done so far as appears possible up to the present, but final results cannot yet be made. This canvass met a whole-hearted response from many of those requested to aid and an equally whole-hearted criticism from many more. My personal view was that it was not, in this state, necessary, and that inasmuch as it carried no authority from the War Department it was more likely to do harm than good.

However, this and my visits to ten county societies have resulted in a very definite opinion being formed so far as the volunteer system of securing physicians for the Army is concerned, and community needs. For the former it has secured a fair percentage, but very much at the expense of the needs of the country—farming—population so that now, even, there is developing a condition which is most likely to become serious as difficulties of cold weather travel develop, and it seems to me that no one in the American Medical Association, including yourself, has any authority to remedy it.

Your comments on the Volunteer Medical Service Corps appear to ignore the fact that the Surgeon-Generals of the Army, Navy and Public Health Service and the Provost Marshal-General head the list of the Central Governing Board and Council of this body, and that it therefore bears their approval, and that the work must be done in order to fill a definite need which they foresee.

It seems to me that, as good soldiers, a request from these men should receive all the strength of a command and that we are making a very serious mistake if we in any way block the work which they are trying to do. If we are to have unity in the medical profession now and in the future, criticisms of this sort in the official organ of the Association of the work of those at the head of the medical work of our forces should be curtailed. It seems to me that if the leaders in the work of The Journal disagree with the methods and criticize the work of this body, the least they can do is to publish at the same time the plan and scope of the work and the names of the officers.

It should be enough for any man to know that these men in their official capacity ask this, for every physician in the country to immediately respond and place his services at the disposal of the government, leaving the work of selection to the members of the organization in their counties and state to whom the work has been delegated subject to their right of appeal to the Surgeon-Generals and Provost Marshal-General as heads of this body.

George H. Coombs, M.D., Waldoboro, Maine.

FROM CHICAGO

To the Editor:—There has been brought to your attention, as evidenced in Queries and Minor Notes of last week's issue, a letter and questionnaire that have been sent out over the signature of the chairman of the Medical Section of the Advisory Commission of the Council of National Defense. I believe these demand consideration and discussion in The Journal.

While one is reading these documents many questions spring to mind, chief of which concern the inferred inefficiency or insufficiency of the Surgeon-Generals' Offices and the Provost Marshal-General's Office; the purpose and necessity of this new organization; its relation to the above mentioned offices, and its relation to the profession and of the profession to it and to the government. For an answer to these we read with interest, if not with enlightenment, the "pledge," the "scope and purpose," the "object of the corps," the "working plans" and the "operating system." Throughout we gather the impression of the implied lack of foresight and of breadth of vision, of inefficiency and insufficiency of the Surgeon-Generals and other government officials, and therefore the need of such a wise governing body as the Medical Section of the Council of National Defense. Like the proficient Irishman, its efficiency does not need to be proved; it admits it.

Among other things, the Volunteer Medical Corps places on record all medical men and women in the United States. How more so than the present government information as gained from the American Medical Association and other sources? Are other sections similar to the Medical Section of the Council of Defense belittling their respective trades and professions? In what respect are, and at what times have, the medical men shown themselves less loyal than other professions or trades that they should be thus treated?

The "working plans" and "operating system," for sheer autocracy, should commend themselves to His Imperial Majesty, Wilhelm. The applicant finds his organization thoroughly manned with officers and executives awaiting only his humble self. Provision is made for a perfectly good set of officials, hand-picked and responsible only to the Medical Section of the Advisory Commission. By this same Medical Section we find that the applicant has his rules and regulations all cut and dried for him. To these he promises to conform. If the Central Board tells him to apply for a commission he must do so, whether the Surgeon-General wishes it or not; it is imperative that he comply with any request for service at any time at any place made by the Central Governing Board; for all of which he finds no provision for himself or family, although he may be sent to the ends of the earth for service. In fact, the whole matter presents the appearance of a one-sided agreement so poorly trumped up as to be not even plausible; to be presuming on the work of the Surgeon-Generals and of the Provost Marshal-General and breaking up a service which is logically unified in the Surgeon-Generals' Offices. Unfortunately, there are many men who have taken it seriously and have sent in their applications, some thinking it was a command from the Provost Marshal-General and others that it may relieve them from such active military duty as would remove them from their homes.

It would seem that The Journal would serve an excellent purpose by giving this matter extended consideration and explaining matters to its great democratic constituency.

Hugh Neil MacKechnie, M.D., Chicago.

To the Editor:—I wish you might think it advisable to enlighten the profession as to the alleged Voluntary Medical Service Corps as the latest Chicago Medical Society *Bulletin* has done. We need the information.

William T. Belfield, M.D., Chicago.

FROM IOWA

To the Editor:—I wish to thank you for the information concerning the Volunteer Medical Service Corps. I do not like the methods pursued. The circular letter received with the application blank was an imperative one, saying, "Sign this and return at once." Another thing that has crept in is the signing of this blank by men over age not acceptable under any circumstances, and to put the very few like myself who did not sign the blank in a "slacker" minority. This, with the newspaper publicity, makes conditions both trying and embarrassing. I resent being put in a situation whereby those who are too old or physically incapacitated who can flaunt a button and use it as a whip to compel me to do something that, as you say, is "of indefinite and undeterminate value to the welfare of the nation." I do not approve of stampede methods in any crisis, and much less in such a one as this. If the civilian population is to be looked after, let it be considered honorable to do it, and not place the civilian doctor dependents in a class by publishing lists of those who join the society, one half of whom in some counties are too old to qualify for any service, and a certain percentage of whom are physically incapacitated. This is not to be published over my name in case you use it.

J. C. C., Iowa.

PHYSICIANS CLAIMING EXEMPTION ON GROUNDS OF DEPENDENCY

To the Editor:—It has been stated in The Journal that some local boards have refused to allow the claims of physicians to exemption or deferred classification on the ground that they are eligible for commission as officers in the Medical Reserve Corps.

There has been no draft of doctors as such. This is not a draft of doctors. It is a civilian draft. All physicians under the age of 46 have been required to register just the same as all other citizens, have the same rights as all other citizens and are entitled to the same treatment that all other citizens receive.

Does the fact that a man is a physician take away any of the constitutional rights which he enjoys in common with every other citizen?

Every physician who can possibly see his way clear to do so should be proud to hold a commission in the Medical Reserve Corps, but no physician is compelled or can be compelled in the matter. Under the law, enlistment in the Corps is, and always has been entirely voluntary, and no draft board can give a commission in it nor guarantee that the government will do so.

Suppose if, for the best of reasons, or for no reason at all, a physician does not apply for a commission, what then? Why then the law distinctly says that if he is a man with wife or children mainly dependent on his labor for support he belongs in Class IV, physician or no physician. There is nothing ambiguous or mysterious in this language; it is as plain as daylight. It does not say men, *except* physicians.

What the boards you refer to are evidently trying to do is to enforce enlistment in the Medical Reserve Corps, a thing that cannot be done, and is an attempt at coercion which a government with a well balanced sense of justice ought promptly to suppress.

If the above observations are erroneous, then my whole conception of the draft system, the Medical Reserve Corps and the draft legislation enacted by Congress is at fault.

R. S. Cone, M.D., Westwood, N. J.

Industrial Employment and Infant Mortality.—It will be seen that in the homes where acute poverty exists there is a marked falling off in the average weight of the baby whether the mother is industrially employed or not. It seems pretty certain that industrial employment has a bad effect on the infant mortality, principally because it interferes with breast feeding. For this reason employment in a factory is more harmful than employment at home. But the influence of industrial employment is quite small when compared with the influence of acute poverty. It would seem therefore that in so far as the mothers' employment reduces the acuteness of the poverty, it may even tend to improve the infant mortality. At any rate, it is doubtful whether any further interference with the employment of married women would be at all beneficial as long as the acute poverty remains.—Report of Dr. Jessie Duncan on Infant Welfare in Birmingham.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

CIVIL RIGHTS OF PERSONS IN MILITARY SERVICE—PERMISSION TO WITHDRAW FROM SERVICE

To the Editor:—1. I have been unable to ascertain just what the *moratorium* covers in regard to the physician who enters the service. I know in a general way that it is supposed to take care of his debts; specifically, I should like to know what disposition could be made in a matter as follows: A lease was taken in 1918 for a period of five years at a rental of $75 per month, together with an option to purchase. The option expires in the fall of 1918. Now what I should like to know is whether or not on entering the service I could extend this option and also the obligation of the rental? How does the moratorium operate in regard to notes and mortgages?

2. Can a medical officer resign in case of sickness to family or self?

J. C. A.

Answer.—1. There is no moratorium specifically covering physicians who enter the service. The Chamberlain bill for the protection of the civil rights of soldiers and sailors, approved March 8, 1918, concerns debts, notes, mortgages and insurance of all men in the service of the government. Under this act, protection is extended to persons in the military service of the United States in order to prevent prejudice or injury to their civil rights during their term of service and to enable them to devote their entire energy to the military needs of the nation. The second article of the act provides for general relief, its purpose being to protect the rights of the man in military service in any action brought against him in court, causing the court either to permit the defendant to appear in person or by an authorized attorney, or to appoint an attorney to represent him, who has not, however, the power to waive any right of the person for whom he is appointed, or to bind him by his acts. The person in military service is given an opportunity to reopen the case at any time within ninety days after judgment is rendered, and the court is also permitted at any time during the period of military service to stay execution of judgment and to vacate or stay any judgment or garnishment of property, money or debts in the hands of another. Such stay of action may be ordered for the period of military service and three months thereafter.

LEASES, MORTGAGES, ETC.

Article 3 provides that no eviction shall be made during the period of military service in respect to any premises for which the agreed rent does not exceed $50 per month, occupied chiefly for dwelling purposes by the wife, children or other dependents of the person in military service, except on leave of court granted on application therefor. The court is permitted to stay proceedings for not longer than three months. Section 301 of Article 3 provides that no person who has received or whose assignor has received, under a contract for the purchase of real or personal property or of lease or bailment with a view to purchase of such property, a deposit or instalment of the purchase price from the person who after the date of payment of such deposit has entered military service, shall exercise any right or option under such contract to rescind or terminate the contract or resume possession of the property for nonpayment of any instalment falling due during the period of such military service, except by action in a court of competent jurisdiction. On the hearing of action the court may order the repayment of instalments or deposits as a condition of terminating the contract, or may in its discretion on its own motion, and shall on application to it by such person in military service or some person on his behalf, order a stay of proceedings, or it may make such other disposition of the case as may be equitable to conserve the interests of all parties. The provisions apply to obligations originating prior to March, 1918, secured by mortgage, trust deed, etc.

INSURANCE AND PREMIUMS

Article 4 concerns insurance and premiums. Persons in the military service should apply on a form prepared in accordance with regulations prescribed by the Secretary of the Treasury for modification of the terms of his original contract of insurance. The original of such application is sent by the insured to the insurance company and a copy to the Bureau of War Risk Insurance. The benefits of this application are available to any person in military service in respect to contracts of insurance in force up to but not exceeding a face value of $5,000 irrespective of the number of policies held or whether held in one or more companies, when such contracts were made and premium was paid before September 1, but not in cases in which no premiums have been paid for a period of more than one year. This act provides that no policy which has not lapsed for the nonpayment of premium before the commencement of military service of the insured, and which has been brought within the benefits of this article, shall lapse or be forfeited for the nonpayment of premium for the period of such service or for a period of one year after the expiration of such period. It provides that the insurance companies shall send to the Bureau of War Risk Insurance each month a list of the policies coming under the act on which application has been made. The Bureau of War Risk Insurance then deposits bonds with the insurance company covering the defaulted premiums, these bonds to be held by the insurance company as guarantee of payment of future premiums. To indemnify it against loss, the United States has the first lien against any policy receiving benefits under this article. In the event that the military service of any person being the holder of any policy receiving the benefits of this act is terminated by death, the amount of any unpaid premiums with interest at the rate provided for in the policy for policy loss shall be deducted from the proceeds of the policy and is included in the next monthly report of the insurance company to the United States as premiums paid. If the insured does not within one year after the termination of his period of military service pay to the insurance company all past due premiums with interest thereon, the policy shall at the end of that year lapse and become void, and the insurance company becomes liable to pay the cash surrender value.

This is taken from the booklet of "Information Regarding Medical Service in the United States Army," published by the American Medical Association.

2. A medical officer can resign only with the consent of the Surgeon-General.

HOW MUCH A MEDICAL OFFICER CAN SAVE—ENLISTMENT IN THE MEDICAL DEPARTMENT

To the Editor:—1. How much can a medical officer save from his salary and allowance for the support of his family? Of course this depends on the person's habits; but if possible make a statement, based on experience of physicians who have had actual experience in the matter, as to the necessary expenses of a medical officer. I have heard conflicting reports. One is that when abroad a medical officer requires his entire pay for his own support; another, that if an officer is careful he can almost live on his "allowances" and thus devote his salary to the support of his family. I believe that it would be very helpful for many of us who have families dependent on us and who have been practicing too short a time to have accumulated anything, to know how much of the pay and allowance may be reserved for the use of a dependent wife and children.

2. I understand that enlistment is closed since the passage of the new draft law. Does this apply to the medical service? Please omit my name.

J. M. E., Illinois.

Answer.—1. The lowest salary which a medical officer receives is that of a first lieutenant—$166.66 a month. If he maintains a residence for dependents, he receives in addition, commutation of quarters, heat and light, averaging about $42 a month. If the officer is abroad, he receives also 10 per cent. additional pay, the total for lieutenant approximating $225 a month. The average expense of an officer in camp varies from about $40 to $75 a month, including his mess bills and incidental expenses.

2. Enlistment is not closed in the Medical Department.

THE CADUCEUS AND THE EMBLEM OF THE MEDICAL PROFESSION

To the Editor:—What was the significance of the caduceus that it should have become emblematic of the medical profession?

L. J. S., Idaho.

Answer.—The caduceus, the rod surmounted by the extended wings and entwined by the two serpents, though regularly used in that connection, is not especially the emblem of the medical profession. According to the Century Dictionary the caduceus is a symbol of peace and prosperity, and in modern times figures as a symbol of commerce. The rod or wand is supposed to be the wand of Mercury, the god of commerce. The rod represents power; the serpents represent wisdom, and the two wings, diligence and activity. As stated by Dr. Samuel P. Gerhard (The Journal, April 24, 1909), the true ancestral symbol of the healing art is the knotty rod and serpent of Esculapius, the device adopted for the emblem of the American Medical Association. The significance of this device is much the same as that ascribed to the caduceus, but as Dr. Gerhard has shown from history and mythology, the serpent as the representative of wisdom has been from time immemorial linked up with the healing art. Dr. Gerhard says:

> Esculapius was always pictured with a knotty rod in his hand, the knots indicating the many difficult problems of physics to be solved in the treatment of the ailments of mankind. Therefore, applying these thoughts to the symbol, we have in the entwined serpent, power, wisdom and health, together with the protection and support against disease and the difficulties to be overcome by the knotty rod. With this historical symbol the sanctity of medicine can be pictured and the doctor is shown in his true light, not only as a laboratory scientist and as a practitioner, but as a teacher and adviser to the patient, the family and the community in all the difficult problems that arise concerning health and disease.

PHYSICAL DISABILITY IN A PHYSICIAN WISHING COMMISSION—CLASSIFICATION UNDER SELECTIVE SERVICE

To the Editor:—1. I have been placed in Class V by the local board on account of entire loss of hearing of one ear due to a radical mastoid operation, and chronic suppurative otitis media of the other ear with impaired function. Would I be accepted for the Medical Reserve Corps? 2. Would I be accepted for the Red Cross? 3. Do you think the board may change my classification and send me to camp as a private?

M. G.

Answer.—1. Probably not. It is impossible from the written description of the condition to state in most instances whether or not the physical disability is sufficient in character to disqualify the applicant for membership in the Medical Reserve Corps. Those who are in doubt should apply before the nearest examining board, which will pass on the physical condition.

2. The Red Cross does not submit its physicians to a physical examination, and any physician who can qualify physically for general practice would, no doubt, be able to qualify for the work of the Red Cross. Address Dr. Alfred E. Shepley, Director, Medical Personnel Bureau, American National Red Cross, Washington, D. C.

3. It is impossible to say what a board will do. The regulations concerning professional men, when issued, may have some bearing on such a case.

COMMUTATION OF QUARTERS FOR WIVES OF OFFICERS

To the Editor:—My husband received his call to service, reporting at Fort Oglethorpe last October and sailing in January for duty overseas. Before going abroad he had a certain portion of his salary allotted to me, the allottment being sent to a bank in this city. I should like to know if my son and self, as dependents, are not entitled to something from the government for commutation of quarters. What is the amount allowed each month? Can I make application for same to the Quartermaster-General, or should my husband do so?

Mrs. D. M. N., Connecticut.

Answer.—The wives of officers are not entitled to collect any extra allowance for commutation of quarters. If an officer maintains a residence for dependents he is entitled to make notation to that effect on his monthly pay check, and the sum allowed is paid to the officer himself. The amount varies from about $42 a month for a lieutenant to $55 a month for a captain and $70 a month for a major.

SUPPLY OF APPARATUS TO MEDICAL OFFICERS

To the Editor:—I have recently enlisted in the Medical Reserve Corps. My practice is confined to general surgery and my information so stated. I have devoted considerable attention to bone and joint surgery, and am equipped with the necessary instruments for such work, including an electromotor outfit, electric sterilizer oven, etc. If I should be ordered to active service abroad, would my surgical armamentarium be aceptable for my use there, or is the supply ample and is one required to use only instruments and apparatus furnished by the department? To whom should I refer for detailed information? Please omit my name.

S. P. A., Iowa.

Answer.—Medical officers in our Army are supplied with all instruments, apparatus, drugs, etc.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Arizona: Phoenix, Oct. 1. Sec., Dr. Allen H. Williams, 219 Goodrich Bldg., Phoenix.

California: Sacramento, Oct. 21-24. Sec., Dr. C. B. Pinkham, Butler Bldg., San Francisco.

Colorado: Denver, Oct. 1. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

District of Columbia: Washington, Oct. 8. Sec., Dr. Edgar P. Copeland, The Rockingham, Washington.

Georgia: Atlanta, Oct. 8-9. Sec., Dr. C. T. Nolan, Marietta.

Idaho: Boise, Oct. 1-2. Sec., Dr. Ray H. Fisher, Rigby.

Illinois: Chicago, Sept. 24-27. Mr. F. C. Dodds, Supt. of Registration, Springfield.

Kansas: Topeka, Oct. 8-9. Sec., Dr. H. A. Dykes, Lebanon.

Michigan: Lansing, Oct. 8-10. Sec., Dr. B. D. Harison, 504 Washington Arcade, Detroit.

Minnesota: Minneapolis, Oct. 1-4. Sec., Dr. T. McDavitt, 741 Lowry Bldg., St. Paul.

Missouri: Kansas City, Sept. 30-Oct. 2. Sec., Dr. George H. Jones, State House, Jefferson City.

Montana: Helena, Oct. 1. Sec., Dr. S. A. Cooney, Power Bldg., Helena.

Nevada: Carson City, Nov. 4. Sec., Dr. S. L. Lee, Carson City.

New Jersey: Trenton, Oct. 15. Sec., Dr. Alex. MacAlester, 438 E. State St., Trenton.

New Mexico: Sante Fe, Oct. 14. Sec., W. E. Kaser, East Las Vegas.

New York: Albany, Buffalo, New York and Syracuse, Sept. 24-27. Mr. H. J. Hamilton, New York Dept. of Education, Albany.

Oklahoma: Oklahoma City, Oct. 8-9. Sec., Dr. J. J. Williams, Weatherford.

Rhode Island: Providence, Oct. 3. Sec., Dr. B. U. Richards, 315 State House, Providence.

Utah: Salt Lake City, Oct. 7-8. Sec., Dr. G. F. Harding, 405 Templeton Bldg., Salt Lake City.

Arizona April Examination

Dr. Allen H. Williams, secretary of the Arizona Board of Medical Examiners, reports the written examination held at Phoenix, April 2-3, 1918. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 8 candidates examined, 5, including 1 osteopath, passed, and 3, including 1 osteopath, failed. The following colleges were represented:

College PASSED	Year Grad.	Per Cent.
College of Phys. and Surgs., Los Angeles (1912) 84.9;	(1917)	79.5
State University of Iowa College of Hom. Med.	(1903)	79.2
Washington University	(1903)	91.7
FAILED		
Detroit College of Medicine and Surgery...........	(1916)	69.6
Syracuse University	(1887)	59

Georgia June Examination

Dr. C. T. Nolan, secretary of the Georgia State Board of Medical Examiners, reports the written examination held at Atlanta and Augusta, June 4-5, 1918. The examination covered 10 subjects and included 100 questions. An average of 80 per cent. was required to pass. Of the 31 candidates examined, 30 passed and 1 failed. The following colleges were represented:

College PASSED	Year Grad.	Per Cent.
Birmingham Medical College	(1915)	80.9
Emory University (1918) 85.5, 85.8, 87.6, 88.1, 89.2, 89.2, 89.6, 89.6, 90.5, 90.9, 91.8, 94.3, 94.1, 94.9, 95		
University of Georgia (1918) 86.3, 86.9, 90, 90.2, 90.5, 90.8.		
Chicago Coll. of Med. and Surg. (1915) 91.3; (1916) *;	(1917)	87.7
Columbia University	(1917)	90.6
Chattanooga Medical College	(1899)	80.9
Meharry Medical College ....(1914) 83;	(1918)	88.6
Vanderbilt University	(1917)	86.7
FAILED		
Southern College of Medicine and Surgery	(1913)	77.8

* No grade given.

Indiana June Examination

Dr. W. T. Gott, secretary of the Indiana State Board of Medical Registration and Examination, reports the written examination held at Indianapolis, June 13-15, 1918. The examination covered 16 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 41 candidates examined, 40, including 1 osteopath, passed, and 1 failed. Eleven candidates were licensed through reciprocity. The following colleges were represented:

College PASSED	Year Grad.	Per Cent.
Loyola University	(1918)	94.5
Rush Medical College	(1917)	90.6
Indiana University (1918) 84.4, 85.1, 87.6, 87.9, 88.1, 88.1, 88.5, 88.8, 88.9, 89.3, 89.4, 89.5, 89.9, 90.2, 90.6, 91, 91, 91, 91.1, 91.4, 91.8, 91.8, 91.8, 92, 92, 92.1, 92.4, 92.5, 92.7, 92.9, 93.3, 93.4, 94.8, 95.1.		
Louisville National Medical College...............	(1908)	83.2
Eclectic Medical College	(1918)	91.1
Meharry Medical College	(1916)	85.6
FAILED		
University of Nashville	(1900)	84*

*Fell below minimum percentage in a major subject.

College LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Bennett Coll. of Eclectic Med. and Surg.	(1901)	Illinois
Chicago College of Med. and Surg..................	(1914)	Illinois
University of Louisville	(1917)	Kentucky
University of Michigan Medical School	(1909)	Michigan
Washington University	(1910)	Missouri
Miami Medical College	(1897)	Kentucky
Jefferson Medical College	(1909)	Ohio
Meharry Medical College	(1913)	Tennessee
Vanderbilt University	(1893)	Kentucky
University of Vermont	(1914)	Maine
University of Virginia	(1907)	Virginia

Louisiana June Examination

Dr. E. W. Mahler, secretary of the Louisiana State Board of Medical Examiners, reports the written examination held at New Orleans, June 6-8, 1918. The examination covered 11 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 45 candidates examined, 41 passed and 4 failed. Three candidates were licensed through reciprocity. The following colleges were represented:

College PASSED	Year Grad.	Per Cent.
Bennett College of Eclec. Med. and Surg.	(1906)	75.7
Tulane University (1917) 77.2, 83.6; (1918) 75.1, 78, 78.5, 80.2, 80.8, 81.9, 82.7, 83, 83.4, 83.8, 84.1, 84.2, 84.7, 85.1, 85.5, 86.1, 86.3, 86.7, 87.1, 87.2, 87.3, 87.8, 88.1, 88.2, 88.6, 88.8, 88.9, 89.2, 89.4, 89.5, 89.5, 89.5, 89.6, 90.2.		
Woman's Med. Coll. of N. Y. Inf. for Women & Child.	(1899)	78.6
Starling Medical College	(1882)	75
Memphis Hospital Medical College ....(1903) 78;	(1907)	75
FAILED		
Eclectic Medical Institute	(1879)	50.4
College of Phys. and Surg., Memphis	(1911)	62.3
Memphis Hospital Medical College...... (1911) 70.1;	(1912)	71

College LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Rush Medical College	(1903)	Illinois
State University of Iowa College of Medicine	(1907)	Iowa
University of Louisville	(1908)	Georgia

New Jersey June Examination

Dr. Alexander MacAlister, secretary of the New Jersey State Board of Medical Examiners, reports the written examination held at Trenton, June 18-19, 1918. The examination covered 9 subjects and included 90 questions. An average of 75 per cent. was required to pass. Fifteen candidates, including 1 osteopath, were examined, all of whom passed. Fifty-six candidates were licensed by endorsement. The following colleges were represented:

College PASSED	Year Grad.	Per Cent.
University of Maryland	(1916)	84.2
Tufts College Medical School	(1917)	85.4
Hahnemann Med. Coll. and Hosp. of Philadelphia	(1917)	90.4
Jefferson Medical College	(1917)	*86, 93.8
University of Pennsylvania (1917) 75.3, 79.7, 80.5, 85.7, 86.4.		
National University, Athens	(1898)	76.1
University of Naples ....(1893) 78.3;	(1908)	75, 75

College LICENSED BY ENDORSEMENT	Year Grad.	Endorsement with
George Washington University ....(1914)	(1917)	New York
Howard University	(1910)	Dist. Colum.
Hahnemann Med. Coll. and Hosp. of Chicago.........	(1908)	New York
Baltimore Medical College ....(1905) Maine;	(1905)	Maryland
Johns Hopkins University	(1915)	Connecticut
University of Maryland ....(1915) North Carolina;	(1916)	Maryland
College of Phys. and Surg., Boston	(1907)	Mass.
Tufts College Medical School	(1907)	Mass.
University of Michigan Medical School	(1902)	Ohio
Washington University	(1914)	Missouri
Columbia College in the City of New York.. (1895)	(1896)	New York
Columbia University (1901) (1903) (1905) (1906)	(1908)	
(1911)	(1917)	New York
....................................(1916)	(1917)	New York
Fordham University	(1905)	Maryland
Long Island College Hospital	(1917)	New York
..............................(1907) (1915)	(1914)	Maryland
New York H. Med. Coll. and Flower Hosp.		Delaware
...............(1914) (1915) (1917) New York;	(1917, 2)	
University and Bellevue Hosp. Med. Coll.	(1917)	New York

University of the City of New York....................(1890) New York
Woman's Med. Coll. of N. Y. Infirmary for Women
and Children ....(1898) New York
....(1917) New York
University of Oregon ....(1903) Penna.
Hahnemann Med. Coll. and Hosp. of Philadel. (1899) (1915) Penna.
Jefferson Med. Coll. ....(1901) (1902) (1908) (1915) Mass.
Medico-Chirurgical College of Philadelphia ....(1916) Penna.
....(1902, 2) New York
University of Pennsylvania (1897) (1899) Penna; (1913) Penna.
Woman's Med. Coll. of Pennsylvania ......(1901) (1914) Illinois
University of Vermont ....(1905) Vermont; (1913) New York
University of Virginia ....(1914) New York
University of Naples..

Book Notices

DIET AND HEALTH WITH KEY TO THE CALORIES. By Lulu Hunt Peters, A.B., M.D. Cloth. Price, $1 net. Pp. 105, with illustrations. Chicago: The Reilly and Britton Company, 1918.

By its title this booklet assumes to be a parody on the guide of a well known religiomedical cult. This, however, appears only slightly in the text in the form of a few of the side headings. The book is intended primarily for the lay public. It contains some good advice in simple language. It explains to the layman the meaning of the calory and the value of this knowledge in choosing diet for the treatment both of obesity and of undesirable thinness, if in a person otherwise normal the latter condition may be said to exist. The book is not serious in tone, but in spots quite facetious; in fact, in some places the humor is even a little forced. Regardless of the financial success of various books for instructing the obese how to become sylphlike and effervescent, it is likely that the personal touch of the instructor with the ambitious disciple is the primary factor. So far as any book is able to maintain this personal touch with the reader, it will be successful in accomplishing its aim. Dr. Peters' book distinctly reflects her personality.

THE STEREOSCOPE IN OPHTHALMOLOGY, WITH ESPECIAL REFERENCE TO THE TREATMENT OF HETEROPHORIA AND HETEROTROPIA. Designed to Accompany the Phoro-Optometer Stereoscope and the Wells Selection of Stereoscopic Charts. By David W. Wells, M.D., F.A.C.S., Professor of Ophthalmology, Boston University Medical School. Cloth. Price, $2 net. Pp. 145, with 31 illustrations. Boston: Globe Optical Company, 1918.

This is a plea for the more frequent use of the stereoscope in overcoming heterophoria and heterotropia. It is supplementary to the phoro-optometer and the Wells stereoscopic charts. The author discusses heterophoria and its treatment, lays special stress on the beneficial results to be obtained by means of the systematic use of the stereoscope, and explains his own methods. In heterotropia the same treatment is advocated, but if unsuccessful, should be replaced by operation, preferably musculocapsular advancement. As a postoperative measure, he advocates the use of the stereoscope in training the fusion faculty. Several pages are devoted to the discussion of the Haitz binocular location of scotomas by means of the stereoscope, and the adaptability of the phoro-optometer to the Haitz and Bissel charts.

MILITARY SURGERY. By Dunlap Pearce Penhallow, S.B., M.D., Chief Surgeon, American Women's War Hospital, Paignton, England. With introduction by Sir Alfred Keogh, K.C.B., Director-General, Army Medical Service. Original drawings by the author. Second edition. Cloth. Price, $6. Pp. 555, with 226 illustrations. New York: Oxford University Press, 1918.

Penhallow has partly rewritten his book to meet the demands made on physicians and surgeons who are called to treat the war wounded in military or in civil hospitals. He has embodied much of the available material that has resulted from the treatment of all manner of war wounds, thus bringing the text up-to date. The Carrel treatment of wounds is described in detail. The author considers it a most important advance, but designates the method as applying "in a scientific manner the treatment which had been advocated sixty years previously by Lister, namely, the treatment of infection by antisepsis." Other methods of treatment are also described. The book is well arranged, well written and illustrated to good purpose.

Social Medicine, Medical Economics and Miscellany

Pyogenic Diplococcus Found in Skin Infections

In various skin infections and infected gunshot wounds seen by Krumbhaar and his associates in a military hospital in France, they found a diplococcus in apparently pure culture that does not seem to correspond with any coccus described in textbooks. In smears from pus and in earlier cultures it is partially or wholly decolorized by Gram's method, so that, on account of its possible occurrence in the spinal fluid in cases of traumatic meningitis, it must be recognized as distinct from the meningococcus. In one case of gunshot wound of the spine, in fact, it was cultivated from the spinal meninges at necropsy, but was differentiated from the meningococcus by agglutination tests as well as the differing sugar actions. The diplococcus in question was first grown from an infected scratch on the finger of one of the workers in the laboratory. In spite of ordinary antiseptic dressing, the infection persisted for over a week, with a tendency to burrow under the skin at the periphery of the infected area. Before its disappearance this produced a slightly raised, rather vesicular circle, with a healing center. During the next two weeks similar infections occurred in scratches on three other fingers, all containing the same Gram-negative diplococcus. Since that time an apparently identical organism has been obtained in another hand infection and in various smears and cultures from infected gunshot wounds. If it should eventually prove to be a new variety, the name *Cuticoccus* (or *Diplococcus cutis*) is suggested.—*Military Surgeon*, 1918, **42,** 502.

Decision on Federal Child Labor Law

By a vote of five to four, the Supreme Court of the United States has decided that the federal child labor law is unconstitutional and invalid. The majority judges were Justices White, Day, Van Deventer, Pitney and McReynolds. Justices Holmes, Brandeis, Clarke and McKenna rendered a dissenting opinion. The law provides that goods manufactured in establishments employing children under 14, or children between 14 and 16 years of age, who work more than eight hours a day, or more than six days a week, or after 7 p. m. or before 6 a. m., may not be shipped in interstate commerce. On the question of whether Congress in regulating commerce among the states had the right to prohibit the transportation of goods manufactured under the condition named, the majority opinion by Justice Day holds:

> The power of the states to regulate their purely internal affairs by such laws as seem wise to the local authority is inherent and has never been surrendered to the general government. To sustain this statute would not be, in our judgment, a recognition of the lawful exertion of congressional authority over interstate commerce, but would sanction an invasion by the federal power for the control of a matter purely local in its character, and over which no authority has been delegated to Congress in conferring the power to regulate commerce among the states.
>
> In our view, the necessary effect of this act is, by means of a prohibition against the movement in interstate commerce of ordinary commercial commodities, to regulate the hours of labor of children in factories and mines within the states, a purely state authority. Thus the act in a twofold sense is repugnant to the Constitution. It not only transcends the authority delegated to Congress over commerce, but also exerts a power as to a purely local matter to which the federal authority does not extend.
>
> The far-reaching result of upholding the act cannot be more plainly indicated than by pointing out that if Congress can thus regulate matters intrusted to local authority by prohibition of the movement of commodities in interstate commerce, all freedom of commerce will be at an end, and the power of the states over local matters may be eliminated, and thus our system of government be practically destroyed.

It is pointed out that the making of goods or the mining of coal are not in themselves commerce, even though the goods were afterwards to be shipped in interstate commerce. If the mere manufacture or mining were part of interstate commerce, it is contended that all manufactures intended for interstate shipment would be brought under federal control to the practical exclusion of the authority of the states, a result, it is said, certainly not contemplated by the framers of the constitution when they vested in Congress the authority to regulate commerce among the states.

The dissenting opinion by Justice Holmes denies entirely that the principle of the rights of the states enters into the question and says:

> The act does not meddle with anything belonging to the states. They may regulate their internal affairs and their domestic commerce as they like. But when they seek to send their products across the state line they are no longer within their rights. If there were no Constitution and no Congress, their power to cross the line would depend on their neighbors. Under the Constitution such commerce belongs not to the states, but to Congress, to regulate. It may carry out its views of public policy, whatever indirect effect they may have on the activities of the states.
>
> The public policy of the United States is shaped with a view to the benefit of the nation as a whole. The national welfare as understood by Congress may require a different attitude within its sphere from that of some self-seeking state. It seems to me entirely constitutional for Congress to enforce its understanding by all the means at its command.

The case on which this decision was rendered was that of Dagenhart against the Fidelity Manufacturing Company of Charlotte, N. C., the petitioner having sought an injunction to prevent the company from discharging his three children. The federal court for the western district of North Carolina held that the petitioner's contention that the law was unconstitutional was well founded.

Medicolegal

Physician at State Hospital Testifying as to Results of Examination

(Casson v. Schoenfeld et al. (Wis.), 166 N. W. R. 23).

The Supreme Court of Wisconsin, in this action for fraud on one Brickman in the exchange of property, had the question as to whether the examining physician of the male patients who were committed to a state hospital for the insane might properly be permitted to testify as to results of his personal examination of Brickman at the time of his commitment following the exchange of property. The court says that by Section 561q of the Wisconsin Statutes the duties of superintendent of such a hospital are specified, and among the duties prescribed it is provided that such superintendent shall be responsible for the care, health and treatment of the inmates; shall cause to be kept a daily record of each inmate, and shall report monthly to the state board of control the name of each patient during the preceding month with a brief statement of his or her mental and physical condition and form of insanity. The physician examined as a witness in this case, although not the superintendent, was in charge of the male patients of the institution, and all examinations of such patients were made by him, and a report was made by him or under his direction of such examination. Over objection he was permitted to disclose that from the physical examination and the test made of the spinal fluid of Brickman he ascertained that Brickman was suffering from a disease of the brain induced by a serious affliction, that it must have been of from ten to twelve years' standing, and that from the nature of such disease and the condition he then found him in, Brickman must have been deranged and incompetent to transact business affairs for a year at least prior to the transaction in question.

Section 4075 of the Wisconsin Statutes reads, "No person duly authorized to practice physic or surgery shall be permitted to disclose any information which he may have acquired in attending any patient in a professional character, and which information was necessary to enable him to prescribe for such patient as a physician or to do any act for him as a surgeon," etc. This court sees no reason why Section 4075 did not squarely meet the situation in this case and exclude the testimony of one situated as was this physician and prohibit him from giving such information as he did, being the result of his examination, just as well as though he had been called in as a private physician to treat Brickman. It was, as he said, part of his duty to classify the inmates, study their insanity, the cause of it, and their condition to determine whether they were treatable and recoverable and what kind of treatment they were to receive if any. Even were there no such testimony here, it is manifest that the commitment of individuals to such an institution is for the purpose of treatment and care, and the present high standard of such institutions could not be upheld and maintained if their sole purpose and object was merely to detain such patients, and not give them care and treatment tending to alleviate, if possible, their unfortunate condition. Almos this precise question has been passed on by this court in the case of *Mehegan* v. *Faber,* 158 Wis. 645, 149 N. W. R. 397 wherein the records kept by the superintendent of the Wisconsin Tuberculosis Sanatorium were held to be properly excluded under Section 4075.

The court, therefore, holds that the public official who, a a physician or surgeon learns in that capacity information concerning a patient committed to his care or to him fo examination in order that such physician or surgeon may be able to dermine what treatment, if any, should be had, o whether any treatment is possible tending to cure, benefit o alleviate that patient, shall not be permitted to give such information to any one unless by consent of the patient. Tha a public record is required to be kept by such physician o institution does not affect the rule. A legislative provision for the filing of certain documents as public reports by physicians is not a legislative declaration that the secrecy o Section 4075 as to physicians has been relaxed.

Barring of Actions for Negligence

(Harding et al. v. Liberty Hospital Corporation (Calif.), 171 Pac. R. 98)

The Supreme Court of California says that, notwithstanding the conflict of authority from other jurisdictions, this court is satisfied that it has become the settled rule in California that actions for injuries caused by the negligent acts of another or his agent must be commenced within the period of one year from the date of the alleged injury, and that the fact that the parties stand in contractual relation to each other does not operate to change the rule or extend the time for the commencement of such actions. Here was an action for damages brought by a woman and her husband, who contended that the cause of action set forth in their complaint was one arising out of the breach of the former's contract with the defendant, such breach consisting in the defendant's failure to furnish adequate and competent surgical treatment for her injured limb. But, notwithstanding the elaboration with which the plaintiffs undertook to set forth the terms and provisions of their contract, the court is of the opinion that the gravamen or burden of this action consisted in the alleged negligent acts of the chief surgeon of the defendant, consisting in his unskilful setting of the plaintiff's injured limb, by reason solely of which the plaintiff's alleged injury and damage arose. For this reason, and because of the rule stated above, the court affirms a judgment in favor of the defendant after its demurrer had been sustained to the plaintiffs' amended complaint on the ground that their cause of action as set forth in the complaint was barred.

Waiver of Privilege by Applicant for Insurance

(Sovereign Camp, Woodman of the World v. Farmer (Miss.), 77 So. R. 655)

The Supreme Court of Mississippi, Division A, in reversing a judgment obtained by Mrs. Farmer, the plaintiff, on a beneficiary certificate issued by the defendant, for her benefit, to her husband, holds that the privilege created by Section 3695, Code of 1906 (Hemingway's Code, Section 6380) is personal to the physician's patient, and may be waived by him either before or at the trial, and, since one of the considerations on which the policy or certificate sued on was issued was the waiver by the applicant of such privilege, it followed that his physicians were competent witnesses, although they obtained their knowledge of his condition while treating him professionally. This evidence, however, must be confined to facts tending to prove the insured's state of health after his application for the certificate was made, for, under another statute, the insurer could not at this time deny the truth of the statements contained in the application, and because of the statute the case in all respects must be tried on the theory that the insured was in good health when the application was made. The testimony of the physicians, therefore, was competent so far as it dealt with matters occurring after the making of the application, but not so far as it dealt with matters occurring prior thereto. However, since the objections to this testimony were not limited to the incompetent portions thereof, they should have been overruled.

Society Proceedings

COMING MEETINGS

American Association of Railway Surgeons, Chicago, Oct. 16-18.
American Public Health Association, Chicago, Oct. 14-17.
Delaware State Medical Society, Wilmington, Oct. 8.
Indiana State Medical Association, Indianapolis, Sept. 25-27.
New Mexico Medical Society, Albuquerque, Oct. 7-8.
Ohio State Medical Association, Columbus, Oct. 1-3.
Pennsylvania State Medical Society, Philadelphia, Sept. 23-26.
Vermont State Medical Society, Burlington, Oct. 10-11.
Virginia State Medical Society, Richmond, Oct. 22-25.
West Virginia State Medical Association, Harpers Ferry, Oct. 1-3.
Wisconsin State Medical Society, Milwaukee, Oct. 2-4.

MINNESOTA STATE MEDICAL ASSOCIATION

Annual meeting, held at Duluth, August 28-30, 1918

The President, DR. ARTHUR J. GILLETTE, St. Paul, in the Chair

Prostatic Calculi

DRS. E. S. JUDD and J. L. CRENSHAW, Rochester: In eight and one-half years we have seen and treated or advised treatment in twenty cases of prostatitis in which prostatic calculi were present, and also eleven cases in which it was necessary to operate for the removal of false prostatic stone. In most instances the false stones were removed by intraurethral methods. Cases of prostatic calculi may be divided into three distinct groups. In two of these groups are cases of true prostate stone as they are formed immediately within the substance of the gland. In the third group the stones are formed elsewhere, usually in the kidney, sometimes in the bladder, possibly in a diverticulum of the urethra, and from there are passed into the prostatic urethra. These are known as false prostatic stones.

The symptoms are those of a severe prostatitis, and often the patient is treated for the inflammation, unaware of the fact that stones exist. If the stones project into the urethra, there will usually be urinary obstruction. In some of the cases, stones have passed through the urethra, and sometimes there is a history of hematuria, although these features are not at all diagnostic. The treatment of all types of prostatic calculi is to remove the stones and remedy the accompanying condition.

DISCUSSION

DR. F. A. DUNSMOOR, Minneapolis: The first patient on whom I operated for bladder trouble was a man who had fallen from a steeple. He had been previously operated on for stone by the crushing method. When I operated on him I found a prostatic stone as described by Dr. Judd. Whenever I have made a diagnosis of prostatic stone I have approached it from the perineal side, and have dislodged the stone and removed it through the urethra.

Derangements of the Semilunar Cartilages of the Knee Joint

DR. M. S. HENDERSON, Rochester: A semilunar cartilage should not be molested unless there has been more than one attack of locking. The term "loose cartilage" is not correct. A ripped or torn internal semilunar will be found in the majority of cases. There is no uniform type of tear, but there are two common types, namely, the middle three fifths, torn longitudinally and placed in the intercondylar notch, the "bucket-handle" tear, and the anterior extremity torn longitudinally and hanging as a loosely attached body readily nipped between the joint surfaces. The symptoms that should be present are: history of trauma, usually indirect; pain; disability; locking of the joint; effusion, and a negative roentgenogram. In atypical cases, operation should be done only after very careful consideration.

DISCUSSION

DR. R. E. FARR, Minneapolis: The knee joint can be opened easily under local anesthesia. As to the danger connected with the operation, if a patient can get along without operation, it is better for him because sometimes with the greatest care and aseptic precautions infection may take place.

DR. EARLE R. HARE, Minneapolis: No part of the body should be approached with more care, so far as asepsis is concerned, than the knee joint. As Dr. Farr said, if a patient can get along without an operation he is much better off than if he has an infection of the joint, which almost invariably results in a bony ankylosis that cannot be treated easily.

DR. M. H. HENDERSON, Rochester: The danger of infection of the knee joint has been somewhat overrated.

Transrectus Incision in the Upper Abdomen

DR. ROBERT EMMET FARR, Minneapolis: Above the navel the transverse incision offers the most adequate exposure of the various pathologic conditions. The gallbladder, stomach, and even the appendix, if not adherent in the pelvis, can readily be dealt with. In most instances retraction of the abdominal wall, both upward and downward, is possible so that good exposure is usually obtained. By supplementing this incision with the near midline vertical incision when necessary, one is afforded the most ideal exposure it is possible to obtain. In the matter of choosing incisions, a great deal can be done by varying the size and direction according to the pathologic condition anticipated. In closing the incision the relaxation afforded by the proper posture of the patient makes it possible to unite the edges of the transverse cut in a relatively short time. The transverse incision always comes together more easily than the vertical.

DISCUSSION

DR. J. W. LITTLE, Minneapolis: I have not been wedded to the transverse incision. I seldom need it for lower abdominal work. For upper abdominal work it is of advantage at times. As a routine practice, the transverse incision is too much surgery.

DR. W. H. MAGIE, Duluth: I have done quite a little work in the upper abdomen through the transverse incision for at least eight or ten years. This incision is particularly advantageous in some cases of gallbladder trouble or diseases of the ducts; also in diseases of the stomach and pylorus, when one is not sure of the diagnosis. It gives splendid access to the organs in the upper abdomen. My experience with this incision has been very satisfactory.

Ectopic Pregnancy

DR. C. B. LEWIS, St. Cloud: I have had thirty-three cases of ectopic gestation in the past ten years, occurring in twenty-nine patients. Thirty-one cases were subjected to operation with the loss of two patients, a mortality of 6 per cent. Two patients were in a dying condition when first seen, surviving the severe hemorrhage and shock only one and two hours, respectively. Abdominal pain was present in all cases, varying from the classical crisis with the following shock from hemorrhage to the more or less continued abdominal distress, which brought the patient for examination. The former condition with its clearcut evidence of intraperitoneal hemorrhage is not usually mistaken, but the slow process with its distress from tubal distention or slight rupture is very confusing. In a case of irregular bleeding and abdominal pain, one must have constantly in mind three conditions, namely, intra-uterine pregnancy with threatening abortion; inflammatory tubal disease, especially hydrosalpinx and pyosalpinx, and extra-uterine pregnancy.

Recurrent Inguinal Hernia

Dr. J. C. Masson, Rochester: In looking over the statistics of the Mayo Clinic from 1907 to 1918 I find that 5,364 inguinal herniotomies have been done. Included in this number were 330 operations for recurrence; seventy of these were for recurrence following operation done here, and the remaining 260 were operations done elsewhere. This included twenty-nine bilateral recurrences, which were counted as fifty-eight operations. In 330 operations for recurrent inguinal hernia, 258 patients had had one previous operation; forty-four had had two previous operations; twenty had had three previous operations, and eight had had four previous operations. In 256 cases in which the time of recurrence is recorded, 189 recurred in the first six months; twenty-six recurred between six and twelve months; nineteen recurred between one and two years, and twenty-two recurred between two and eight years.

The operation I perform is a slight modification of the Andrews, which in turn is a combination of the Halstead and Bassini principles. The only exceptions I ever make to this technic are: (1) to follow the Ferguson technic in all hernias associated with undescended testes, and in a few infants (2) to utilize the rectus muscle, according to Bloodgood, in all cases in which the internal oblique is not sufficiently strong, (3) in a very few cases to follow the Halstead technic, and (4) in extra difficult cases, in old men, occasionally to cut all the structures of the cord at the internal ring, close the canal much the same as in the treatment of a ventral hernia, and perform an orchidectomy.

Fractures of the Head of the Radius

Dr. L. E. Daugherty, St. Paul: Fractures of the head of the radius occur frequently. The treatment of the two most common types of fracture, that is, the splitting of the bone and the impaction of the anterior lip, is simple. The elbow is put at rest in a right angle splint, and this is done more to prevent rotation than flexion. The splint should remain in place at least three weeks. Recovery with complete function has been good: In case portions of the head are broken off and act as foreign bodies, they will sooner or later have to be removed. In old neglected fractures of this character in which there is a distinct limitation of motion, we need not be afraid to resect the radial head, for it can be done without loss of function and with no deformity.

The Surgical Importance of Abdominal Adhesions

Dr. William R. Bagley, Duluth: The elimination of adhesions following operative work should be the earnest consideration of the surgeon. To accomplish this, one should first make as small an incision as possible; should get more of the sutures covered, especially those not of plain catgut; should utilize the omentum in covering all raw surfaces, and should keep the small intestine as remote as possible from the field of operation. In hysterectomies a long flap of the peritoneum should be made on the anterior surface of the uterus, and all raw surfaces covered. A frequent change of position in bed should be encouraged, not overlooking the raising of the foot of the bed in pelvic cases when permissible. The abdominal dressing has an important bearing on the formation of adhesions.

Paraffin Treatment of Burns

Dr. Arthur N. Collins, Duluth: In dressing my burn cases for the first time no attempt at cleansing the surface is made beyond spraying lightly with a 3 to 5 per cent. solution of dichloramin-T over which the paraffin is painted. Blisters are punctured but not removed at the first dressing. At subsequent dressings, any loose or sloughing skin is trimmed off with sharp scissors. The secretions are removed by spreading smooth sheets of sterile gauze over the surface and blotting by gentle pressure. A cotton pad with a twisted pedicle for a handle may be used for this pressure. The surface is then ready for drying. This is done thoroughly with an electric hair drier or blower. Where there is infection or sloughing skin with accompanying foul odor, the dried surface is then sprayed with dichloramin-T. In some places this may cause pain. If this is immediately covered with liquid petrolatum, the pain is relieved. For this purpose two atomizers are held in the left hand while the syraying bulb is operated with the right. One atomizer contains the dichloramin-T in an oily solution, and the other contains sterilized liquid petrolatum. If at any time during the application of the dichloramin-T the patient complains of pain, the liquid petrolatum may immediately be sprayed on at that point. The surface is then ready for the paraffin crust. Ordinary paraffin with 2 per cent. of liquid petrolatum to increase flexibility is used. The mixture is heated in a double boiler and is brushed on. It may be used in a paraffin atomizer with a water jacket, if preferred. It may be cooled down until a few drops on the back of the hand or wrist are not uncomfortably hot. It is daubed on gently at first. Much stroking with the brush over the raw surface seems to cause pain. The raw surfaces are covered thinly at first. If the patient complains of the heat, an assistant may apply the electric blower or drier to cool the freshly coated surface following the brush. After the burned surface has been coated gently and is hardened, a second coat is applied and extended outward for 1 or 2 inches on the surface of the healthy skin. Before this dries, thin sheets of cotton fiber are spread over the soft crust and are brushed over with the paraffin, which impregnates the fiber with the crust. When this is hardened, absorbent cotton is placed thickly over the most dependent edges to absorb secretions, which commonly leak out. The dressings over large body burns may be held in place by a band, swaths, slit nightshirt or other device which may later be cleaned, sterilized and used again, thus contributing to a large saving in bandage material. The dressing is renewed in twenty-four hours.

Surgical Treatment of Traumatic Epilepsy

Dr. A. C. Strachauer, Minneapolis: In cases of traumatic epilepsy operation should be done as early as possible after the incidence of the convulsive attacks, that is, before epileptogenic changes occur in the brain. The likelihood of betterment diminishes in inverse ratio to the duration of the epilepsy. In well established cases, even though the attacks are not stopped entirely, they are apt to be lessened in severity and the interval between their occurrence prolonged, provided the operation results in the removal of a definite macroscopic lesion. Scarred and adherent dura, when extensive, would better be removed entirely. Small adhesions may be separated carefully without sacrificing the dura. Cysts should be evacuated and the sac removed or at least partially removed. A cortical scar, when present, should be excised clean and smooth, down to the white matter, if necessary. Foreign bodies, such as a bullet or piece of metal, should be removed carefully, and when necessary through a clean cut incision into the brain cortex rather than through laceration of the cortex. Edema of the pia is frequently present, and may be relieved by numerous small needle pricks. Cases of persistent headache, dizziness, changed character and mental derangement following trauma have been improved and cured by the operation of decompression.

Therapeutic Effects of Overfeeding in Pernicious Anemia

Dr. T. A. Peppard, Minneapolis: Three cases of pernicous anemia have been studied with reference to the effect of forced feeding. In two cases, possibly in all three, a positive nitrogen balance was secured without difficulty. During the gain in weight, symptomatic improvement took place, and there was a distinct betterment in the blood picture.

Hemolytic Icterus: Report of Two Splenectomies

Dr. J. P. Schneider, Minneapolis: These two cases were of the acquired type. Both exemplify very well the splenic crises, such as headache, prostration, vomiting and deeper jaundice. In one patient the presence of gallstones was announced by biliary crises distinctly more painful and sharp in nature. It is important to keep the distinction in mind. Pregnancy added to the liver's burden with the resulting toxemia. In both patients the high duodenal pigment values confirmed the diagnosis. In the second patient we anticipated considerable disease in the liver itself because of very high values of urobilinogen. This patient is regenerating liver cells rapidly, but even after sixty days following ablation of the spleen, the damage has not been repaired entirely, for while urobilinogen has fallen from 16,000 to 600 units, its presence even in this amount indicates a residual pathologic condition of hepatic cell function. It is conceivable that this patient, if left unrelieved, would in time have developed a biliary cirrhosis. Urobilin, the pigment characteristically increased in the bile in hemolytic icterus, shows normal values in the first patient the second week and the second eight weeks after splenectomy.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Public Health, Boston

August, 1918, 8, No. 8

1 Health and War. I. Fisher, New Haven, Conn.—p. 559.
2 Rat and Infantile Paralysis. M. W. Richardson, Boston.—p. 564.
3 Life Table for City of New Haven. L. I. Dublin, New York.—p. 580.
4 Inexpensive Field Plating Outfit for Bacterial Examination of Milk. F. O. Tonney and J. L. White, Chicago.—p. 582.
5 Chemical Analyses of Bacteriologic Bouillons. F. C. Cook and E. LeFevre, Washington, D. C.—p. 587.
6 Survival of Typhoid Bacilli in Sour Milk. P. Marsh.—p. 590.
7 Efficient State Health Program against Venereal Diseases. H. G. Irvine.—p. 594.
8 Professional Instruction in Public Health in United States and Canada. E. C. Howe.—p. 600.
9 *Typhoid: Its Nature, Mode of Spreading and Prevention.* W. Budd.—p. 610.
10 Simple Automatic Thermostat for Use in Electric Incubator. F. O. Tonney, Chicago.—p. 584.

Annals of Surgery, Philadelphia

August, 1918, 68, No. 2

11 *Industrial Medicine and Health Insurance.* T. W. Huntington, San Francisco.—p. 113.
12 *Value of Transfusion of Blood in Treatment of Wounded in War. A. Primrose, England.—p. 118.
13 *Rôle of Evacuation Hospital in Care of Wounded. D. F. Jones, Boston.—p. 127.
14 Relation of Orthopedics to General Surgery. G. G. Davis, Philadelphia.—p. 133.
15 Malignant Tumors of Jaws. A. J. Ochsner, Chicago.—p. 136.
16 *Recurrent Dislocation of Lower Jaw. J. B. Blake, Boston.—p. 141.
17 Two Cases of Enlarged Thyroid Producing Suffocation by Displacement Beneath Sternum. H. B. Delatour, Brooklyn.—p. 146.
18 Application to Empyema of Principles Underlying Use of Antiseptics. E. K. Dunham, New York.—p. 148.
19 Hemorrhage from Aneurysm of Internal Carotid Artery, Following Septic Sore Throat. J. Ransohoff, Cincinnati.—p. 152.
20 *Postoperative Thoracic Drainage. W. Meyer, New York.—p. 156.
21 *Treatment of Diseases of Costal Cartilages; Report of Cases. A. V. Moschcowitz, New York.—p. 168.
22 *Surgical Treatment of Cirrhosis of Liver and Their Complications. W. J. Mayo, Rochester, Minn.—p. 183.
23 Cholecystitis. F. G. N. Starr and R. R. Graham, Toronto, Canada.—p. 188.
24 *Method of Permanent Gastrostomy. F. T. Stewart, Philadelphia.—p. 194.
25 Spastic Ileus (Spasmodic Intestinal Obstruction); Report of Case. L. Freeman, Denver.—p. 196.
26 *Right Colectomy. G. W. W Brewster, Boston.—p. 203.
27 Fistula of Colon. C. H. Mayo, Rochester, Minn.—p. 211.
28 Treatment of Direct Inguinal Hernia in Adults. L. W. Hotchkiss, New York.—p. 214.
29 *Ligation of Abdominal Aorta; Ligation of First Portion of Left Subclavian. C. A. Hamann, Cleveland.—p. 217.
30 Use of Pedunculated Flap in Reconstructive Surgery. J. S. Davis, Baltimore.—p. 221.
31 Case of Hereditary Osteopsathyrosis. W. I. Terry, San Francisco.—p. 231.
32 Amputations of Leg. I. Olmstead, Hamilton, Ont.—p. 235.
33 Results Obtainable in Treatment of Fractures. W. L. Estes, and others.—p. 238.

12. **Transfusion of Blood in War.**—Primrose has mainly employed a modification of the syringe and cannula method introduced by Lindeman, and in one case found the two-way stopcock apparatus of Unger answered admirably. Primrose has frequently transfused 1,000 c.c. and in one case 1,140 c.c. from one donor. In none of these instances has the donor suffered other than very temporary inconvenience. The desirable amount must be determined in the individual case, but in hemorrhage one aims at from 600 to 700 c.c. as a minimum while in the majority of instances of severe hemorrhage it would appear that a larger amount, say 1,000 c.c., is more effective. At the last meeting of the Interallied Surgical Congress at Paris, in March, 1918, it was concluded that the results obtained by the transfusion of blood justify its being looked on as the method of choice in the treatment of serious hemorrhage, both primary and secondary. It was agreed that the method of transfusion employed should make it possible to measure the quantity of blood transfused. Regarding the danger of hemolysis it was concluded that at advanced posts it is justifiable to resort to transfusion even if it be impossible to test the agglutination, as the risk of serious results is relatively small, but it should be tested in all other units.

13. **Rôle of Evacuation Hospital.**—From experience at a base hospital, Jones is convinced that the evacuation hospitals and mobile units should first be equipped with staffs of surgeons of well known ability and experience, after which the base hospitals should receive their 40 per cent. of experienced surgeons, if it is possible to get them.

16. **Recurrent Dislocation of Lower Jaw.**—Tying up the coronoid process or the tissues inserted on it to the zygoma, is suggested by Blake as an operation in these cases. This procedure is less difficult than any careful and accurate work on the joint itself, and further it acts to a much greater mechanical advantage, in that the coronoid is 3 or 4 cm. in front of the joint and is by so much in a better position to withstand trauma tending to dislocation. A case is cited in which this procedure was employed successfully. An incision was made along the lower border of the zygomatic arch and the fibers of the masseter separated from it. This incision was well above Stenson's duct and parallel to the facial nerve fibers. With some difficulty, the coronoid process was reached; it was much deeper than had been anticipated, and Blake was not able to do what he had originally planned; this was to drill through the tip of the coronoid, thread a piece of silver wire through the hole and lace this over the zygoma. He therefore looped the wire first over the zygoma and then brought it down and carried it through the insertion of the temporal muscle, and the periosteum on the front of the coronoid, twisted the ends together, flattened it, and closed the wound without drainage. The wire loop was long enough to allow the jaw to open for 2 cm., or 1 inch between the incisors. The masseter was carefully sutured to its origin; bandages held the jaw closed, and the wound healed by first intention. The jaw was immobilized three weeks. More than a year after the operation, his jaw is normal and reliable in every way, the excursion being about 4 cm. at the incisors.

20. **Postoperative Thoracic Drainage.**—Meyer is convinced that the successful issue of surgical work within the thorax seems best assured by combining immediate, complete closure of the incision with an efficient method of simple and safe drainage of fluid and air—without allowing the latter to regurgitate into the chest. Kenyon's method of draining empyema in children has been found to be useful also for postoperative thoracic drainage in general. It is simple, safe and easy of execution. It permits of satisfactory observation of the quality and quantity of the effused fluid. Kenyon's method of postoperative drainage fulfils Sauerbruch's demand that the thorax be closed air-tight and water-tight after intrathoracic operations. Yet, it permits of draining off, in an efficient manner, the secretions of the pleura, which follow the majority of intrathoracic operations, and usually are not sterile. The introduction of Kenyon's method of drainage, therefore, bids fair to mean a long step forward in the evolution of thoracic surgery. It greatly adds to the safety of intrathoracic surgical work, and should, for the present at least, be employed after every operation on the thorax in which the free pleural cavity, particularly a "virgin-pleura," had to be traversed.

21. **Treatment of Diseases of Costal Cartilages.**—Five cases are cited and analyzed by Moschcowitz. Diseases of the

costal cartilages may be caused by any one of the pus-producing germs. The infection is cause most frequently by the tubercle bacillus; next in frequency appears to be the typhoid bacillus. Cartilage exposed in an infected wound does not heal, and practically always forms a sinus. Given the same conditions, that is, exposed cartilage, plus infection, a relapse is almost certain to occur, even if a portion of the diseased cartilage has been excised, apparently well beyond the infected area. If the conditions are favorable, that is, in the absence of infection, or where only slight infection exists, the operating surgeon may take the risk and close the wound entirely; under no circumstances should a would of this nature be drained, and least of all with gauze. The most certain procedure is to remove the offending cartilages throughout their entire extent, so that not even a trace of exposed cartilage is visible in the wound. If any portion of the sixth, seventh, eighth, ninth or tenth costal cartilages is diseased, it is necessary to remove all these cartilages in toto, in order to bring about healing. Moschcowitz sounds a warning that some of these patients do not stand operations well. In a number of cases the operation had to be terminated rather abruptly, because the patient went into a condition of shock, even when there was no untoward accident, such as perforation of the pleura or pericardium or unlooked for hemorrhage.

22. **Surgical Treatment of Cirrhoses of Liver.**—Mayo calls attention to splenectomy and similar procedures as a ready means of reducing the portal circulation for the purpose of relieving the subnormal liver of its overload.

24. **Method of Permanent Gastrostomy.**—Stewart makes an incision from a point just below and to left of the ensiform cartilage downward parellel to the median line for 3 or 4 inches. About 2 or 2½ inches to the left of this incision a second cut is made, the upper end of which is on a level with the upper end of the first incision, the lower end of which is on the level with the lower end of the first incision. The lower extremities of these incisions are connected by a transverse incision. The rectangular cutaneous flap thus outlined is dissected free from the subjacent deep fascia as far as its base, and the two long margins sutured together with catgut over a catheter, the eye of which remains uncovered below the lower end of the flap. The catheter with its enveloping skin is drawn to one side, the underlying rectus muscle split longitudinally, and a portion of the anterior wall of the stomach drawn from the abdominal cavity. A small transverse opening is made in the exposed gastric wall, the inferior extremity of the catheter pushed into the stomach through the opening, and the rim of the lower end of the dermal tube enveloping the catheter sutured with catgut to the edges of the opening in the stomach. The lower half of the dermal tube is buried in the wall of the stomach in the same manner as the catheter is buried in the Witzel operation. The upper end of the canal thus formed by the inversion of the anterior wall of the stomach is sutured to the abdominal wall, and the split rectus muscle approximated with catgut around the upper half of the dermal tube. The skin about the raw surface which remains is undermined, and, beginning at the lower left corner of the oblong defect, sutured; the sutures being inserted farther apart on the right than on the left, until the lower margin of the external orifice of the dermal tube is reached, when the suture line bifurcates to embrace the new stoma. The scar thus resembles a Y, the long tail of which is slightly convex toward the median line. The catheter is fastened to the skin with a catgut suture and should remain in place until the completion of healing, after which it may be withdrawn, to be reinserted only at the time of the feedings.

This method of gastrostomy is designed for those patients, usually suffering from irremovable esophageal carcinoma, who must for the rest of their lives be nourished through an artificial opening in the stomach. Stewart performed the operation five times. One patient died at the end of ten days from pneumonia. Three lived for periods ranging from three to six months. One lived one year, dying of suppurative cholangeitis. This patient had an ulceration of the gullet which was diagnosticated as carcinoma. After several months of esophageal rest, however, the ulcer healed and swallowing became easy. The gastrostomy was therefore no longer kept in use and its lumen gradually contracted, so that at the end of a year only a fine probe could be introduced.

26. **Right Colectomy.**—A preliminary report is made by Brewster of the results in a series of nineteen operations in which the right colon was excised for relief of symptoms which were attributed to blocking of feces in the cecum. In summing up the result of the operations in the nineteen cases, Brewster is convinced that in cases of right-sided obstruction with stasis in the cecum or ileocecal region the result of mechanical or apparently mechanical causes, if unrelieved by any palliative method of treatment, may be successfully cured by resection of the right colon. The immediate result of the operation shows it is an operation which can be done without undue risk: twenty cases reported by Mayo, twelve by Johnson, and this series of nineteen, without a mortality, but it is too serious to be undertaken except for very definite conditions of incurable partial obstruction. The indications for excision are dilatation of the cecum, extreme mobility, presence of adhesions in patients unrelieved by any palliative treatment and whose symptoms lead to chronic invalidism.

29. **Ligation of Abdominal Aorta.**—Case 1.—Ligation of the abdominal aorta, just above its bifurcation, for a pelvic tumor, mistaken for an aneurysm; survival of patient for six months without gangrene of the extremities. Death due to hemorrhage from a bedsore. The main points of interest in this case seem to be the following: First, the fact that the patient lived six months after ligation of the abdominal aorta just above the bifurcation, without the appearance of gangrene of the extremities. Second, the partial restoration of the lumen of the vessel, after apparent complete obliteration by a firmly tied silk ligature. Third, the reappearance of the femoral pulse on the third day. Inasmuch as the aorta was not found to be completely obliterated, in this case, Hamann believes it can hardly be said that proof is afforded that collateral circulation can develop after ligation of the aorta to a sufficient extent to prevent gangrene. It is his belief that ligation of the aorta below the origin of the inferior mesenteric is a justifiable procedure in cases of iliac aneurysm, for instance, and that it affords fair chances for recovery and cure.

Archives of Internal Medicine, Chicago

August, 1918, **22**, No. 2

34 *Frequency of Lead, Turpentine and Benzin Poisoning in Four Hundred Painters. L. I. Harris, New York.—p. 129.
35 Practical Identification of Endothelial Leukocytes in Differential Blood Counting. F. A. McJunkin and A. Charlton, Milwaukee.—p. 157.
36 *Blood Sugar in Thyroid and Other Endocrine Diseases. N. W. Janney and V. I. Isaacson, New York.—p. 160.
37 Influence of Thyroidectomy and Thyroid Diseases on Protein Metabolites. N. W. Janney and V. I. Isaacson, New York.—p. 174.
38 Studies in Thyroid Therapy. N. W. Janney, New York.—p. 187.
39 Nitritoid Crises After Arsphenamin Injections. L. Berman, New York.—p. 217.
40 *Clinical Report of Nonspecific Protein Therapy in Treatment of Arthritis. R. G. Snyder, New York.—p. 224.
41 Serologic Localization of Organic Brain Lesions. J. M. Retinger, Chicago.—p. 234.
42 *Treatment of General Paresis. C. A. Neymann and N. H. Brush, Baltimore.—p. 245.

34. **Lead, Turpentine and Benzin Poisoning in Painters.**—This study of painters was undertaken by Harris to obtain a more concise idea of the extent to which actively employed workers, most of whom thought themselves in excellent health, gave evidence of damage inflicted by lead paints. One hundred and sixty-three of the active cases of lead poisoning were found among the 402 painters examined. All of these showed definite clinical signs of plumbism; seventy-two of the active cases were found to have lead in the urine in addition to clinical evidence. Thirty-five were found to have lead in the urine without manifest clinical signs. At least 70 per cent. of all those examined gave a fairly clear and recognizable history of one or many attacks, and 142 painters gave a history of recent severe intoxication.

Varnish removers containing acetone and benzol were reported to have caused severe air hunger. Most of the painters were emphatic that benzin had caused them more discomfort and illness than all the other volatile agents; its effects seem to be more lasting. Most painters when overcome were quickly relieved when taken into the open air.

Practically 60 per cent. of the recent cases of turpentine and the related type of intoxications were found among the 163 active and thirty-five latent lead poisoning cases. Forty-seven of the 142 recent cases had suffered from frequent and moderately painful urination. Occasionally, symptoms that indicated strangury with bloody urine were described. Twenty-three of this group complained of frequent attacks of vertigo.

A comparatively small number survive as active members of the trade after having attained the age of 50 years. Sixty-three negative cases were engaged at the painter's trade for a period of from ten to nineteen years. Most of these were less than twelve years at this work. A satisfactory history with reference to the use of alcohol was obtained in only 304 cases. More than 21 per cent. were total abstainers, an almost equal number drank excessively, while about 55 per cent. drank very little and only occasionally. Alcoholic indulgence, therefore, did not seem to be a marked predisposing factor toward lead poisoning, as it so frequently has been found.

Under the head of precautions against lead poisoning may be mentioned the drinking of milk before and during work. Harris found that while forty-five painters were in the habit of regularly taking one glass a milk per day, and eighty-one regularly drank from a pint to a quart per day, the remaining 276 were extremely lax in this particular. Eighty-seven painters of all the active cases of plumbism gave a history of recent colic. One hundred and seventeen of the active cases of plumbism suffered from marked and persistent constipation. Seventy-five of the active cases complained of frequent and severe headache, usually in the frontal region. The blue line on the gums was found in a total of twenty-two, or a little less than 14 per cent. of all active cases, in only one of the latent cases, and in a little less than 6 per cent. of all the painters examined.

Of the 162 positive or active cases of plumbism, seventy-five gave a definite reaction showing lead in the urine. The blood of 209 persons was examined for basophilic red cells, with the result that this sign, like the lead line, was found to be of limited practical value. A marked secondary anemia was found in eighty-six active cases, fourteen latent cases, twenty-four borderline cases and forty-seven negative cases. Evidence of arteriosclerosis was found in sixty-three persons, or 26 per cent. of those in whom blood pressure observations were made. Twenty persons showed by the presence of albumin, casts and other physical signs the presence of chronic interstitial nephritis. Backache was mentioned by ninety-one of the 162 active cases. Of the 162 patients who had active manifestations of plumbism, only ten gave a positive Wassermann reaction; in four a doubtful reaction was reported.

Loss of weight and muscular strength was a surprisingly common complaint. Pains in various joints were mentioned by fifty-one of the 162 men who showed evidence of active plumbism, and fifty-five complained of a dull pain in the chest. Thirty gave a history of having frequently had a distinct metallic taste in the mouth.

Of all cases of chronic bronchitis 59 per cent. were found among the cases of active lead poisoning. In two of the active cases of plumbism the men had moderately advanced pulmonary tuberculosis with tubercle bacilli in the sputum. The total of advanced and incipient cases was twenty, and inclusive of suspected cases thirty. Seventeen cases of bronchial asthma were found in this series; eight of these were cases of active plumbism. Acne, especially on the back and face, and chromophytosis were very frequent. Ninety painters had a fairly marked pyorrhea alveolaris, and 104 showed marked decay of the teeth and lack of care. Chronic pharyngitis was found in 127 painters; hypertrophic rhinitis in twenty-eight cases, and marked deviation of the septum in 147 painters. In only fifteen was marked hypertrophy of tonsillar tissue found.

36. **Blood Sugar in Endocrine Diseases.**—Experimental proof that hypoglycemia results from hypo-endocrine function was obtained in the case of the thyroid gland, where hypoglycemia regularly developed after thyroidectomy. Explanation is thus afforded for the low blood sugar value observed in myxedema, cretinism, Addison's disease and pituitary disease and other less clearly defined endocrine conditions such as muscular dystrophy. The increased tolerance to glucose as determined by testing the urine in such diseases of the ductless glands is probably to be best explained as due to the hypoglycemia present in these conditions. Delay in the assimilation of glucose from the blood was found to follow thyroidectomy in animals by employment of a blood glucose tolerance test. The same change was demonstrated in cretinism, exophthalmic goiter, and hypophysial disease. Determination of the fasting blood sugar value and the blood glucose tolerance test are useful in the diagnosis of endocrine diseases.

40. **Nonspecific Protein Therapy in Treatment of Arthritis.**—Typhoid vaccine from the laboratories of the board of health was used. The decision in this matter was influenced by the consideration that it would be easy to make this method of treatment accessible to the general practitioner in the future if the initial success should prove to be of permanent character. This was contrary to the advice of Miller and Lusk, who said that they were unable to obtain reliable results from stock vaccines. They used their own freshly prepared vaccine. The dose of vaccine was administered in 10 c.c. of freshly prepared physiologic sodium chlorid solution. One hundred and ten patients were treated. In about 60 per cent. of the cases, one injection abruptly terminated the acute attack. A large majority of them had been unsuccessfully treated by the usual rheumatic remedies before coming to the hospital. Thirty per cent. required from one to five injections. The greater number of these obtained immediate relief from pain, although the permanence of the cure has not been established. Ten per cent. were unimproved. After repeated injections, marked improvement was obtained in 50 per cent. of the subacute cases, considerable improvement in 25 per cent., and only slight improvement in the remaining 25 per cent. The greatest improvement follows the first dose. It was frequently noted that intractable or obstinate cases did not improve until doses sufficiently large to produce a severe reaction were given. Sometimes one severe reaction was sufficient; at other times it required several marked reactions to effect a definite improvement in the patient's condition. In the chronic cases, those which have persisted for periods lasting from one to ten years, even those with marked ankylosis, a moderate improvement in the mobility of some of the joints was noted in almost all cases. This increased mobility was particularly noted in the joints of the upper extremities.

42. **Treatment of General Paresis.**—Twenty-four cases of general paresis, treated alternately once a week with arsphenamin serum and mercurialized serum, are described by Neymann and Brush. Six patients were so markedly improved that five of them were able to resume their occupations. All of them gave practically negative serologic findings. The average duration of the present status is fifteen months. The authors consider these are arrested cases. Six others were somewhat improved, four resuming their occupations, while two are continuing their treatment. All of these were somewhat improved serologically. Six showed no clinical or serologic improvement, except in one case. This is undoubtedly a clinical remission; the serologic status remained unchanged. The last six were harmed by the treatment. One developed a paraplegia; two became incontinent; one died of acute arsenical poisoning and one developed an arsenic neuritis; finally, one died in convulsions, possibly as the result of the treatment. Whenever the serologic findings tend to become negative, they usually change in the following order and manner: The cell count is first reduced to normal. The Wassermann reaction then becomes negative. The paretic colloidal gold curve changes to an atypical or negative one. The globulin tests became less marked, but traces of globulin usually remain. Twenty-three per cent. of all the paretic patients examined show negative blood Wessermann reactions.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

Aug. 10, 1918, 2, No. 3006

1 *Treatment of Wounded in Aid Posts and Field Ambulances. S. M. Smith.—p. 127.
2 *Gunshot Wounds of Head. T. O. Graham.—p. 129.
3 *Traumatic Aneurysm of Left Subclavian Artery. J. S. White. —p. 131.
4 *Blood Pressure in War Traumatisms. E. F. Cyriax.—p. 132.
5 The "Man Value" of Working Class Diets. Greenwood and C. M. Thompson.—p. 133.

1. **Treatment of Wounded in Forward Areas.**—The general principles which govern forward unit work are summarized by Smith as follows: 1. Get the wounded back to the clearing station as soon as you can. 2. Dress the wound once carefully; afterward do not disturb the dressings unless they have slipped or unless there is bleeding. 3. Take measures to avoid shock; if it has already supervened, take measures to treat it. 4. Efficiently splint all fractures. 5. Arrest hemorrhage. 6. Take any special measures needed in special cases. Rapid evacuation calls for qualities of organization, and endurance, devotion and courage. A wounded man passes through one of the larger units in much the way that a piece of metal passes from department to department of a factory till it emerges the finished article. Records have to be taken, antitetanic serum given, food or drink administered, the wound dressed, splints applied, the patient warmed and packed up for transport. Often this has to be done under circumstances of almost intolerable difficulty. The difficulties can only be surmounted by organization of the machine beforehand, so that each man does his job and confusion is avoided. "Team work" is essential. Smith says: "To see a Thomas' splint applied to a fractured femur by a well drilled team is a revealtion to the inexperienced."

Dressings must be ready beforehand. The field or shell dressing will have been applied usually by unskilled hands. It is liable to be dirty and tight. Therefore remove it and do one careful dressing. It is not possible to have clean hands. Rubber gloves are out of the question, but with sufficient practice forceps can do the whole work without hands having to touch either the wound or the dressings which are to be in immediate contact with it. Pairs of sterilized forceps standing in glasses of antiseptic should be at each dressing "dump." The wound itself is temporarily covered with gauze; the skin around is then washed and painted with picric acid (3 per cent.) in alcohol. (Iodin is liable to blister, and when combined with cyanid gauze causes serious burns.) The wound is then uncovered, obvious dirt or foreign bodies are removed, and the surface of the wound swabbed over with eusol. No attempt should be made to clean out the depths of the wound or to syringe or irrigate. Attempts to delay or avoid infection by the injection into wounds of fluids or pastes are futile. The wound is finally covered with gauze and wool and bandaged.

Shock is caused by cold and exposure, lack of food and drink, hemorrhage, pain and disturbance. The warm stretcher is used in many aid posts. Improvised hot-water bottles are widely employed, and ambulance cars are warmed by the exhaust pipe. When circumstances allow, and it is possible to do it in reasonable warmth, and shelter, the wet clothes may be changed. Hot drinks should be given. With a view to combating acidosis, a teaspoonful of bicarbonate of soda is sometimes added. Of all factors concerned in shock, hemorrhage is, perhaps, the most potent. Every effort must be made to reduce it to a minimum. Every change of dressing starts oozing afresh. In the avoidance of pain, the importance of efficient splinting cannot be overrated. Morphin is of great value. It should not, however, be given indisciminately, and the dose needs careful regulation. A dose of one-fourth grain should seldom be exceeded. Transport with fractures imperfectly splinted is a great feature in increasing and producing shock. Every fracture should be immobilized as far forward as possible. This is very often possible at the aid post. Failing this, it should be done at the advanced dressing station. The fewer and simpler the varieties of splints used the better.

As for hemorrhage, Smith says, that properly used, the tourniquet at times saves a life. Improperly used, it is a frequent cause of loss of life and limb. Its use is seldom justifiable, and then only as a temporary measure for the arrest of serious bleeding until the wounded man can be got to a place where the arrest of hemorrhage by the recognized surgical methods can be carried out. In patients getting back as far as the clearing station with tourniquets applied, death of the limb from interruption of the circulation is almost invariable. Even if this does not occur, the cutting off of the blood supply from an area of smashed muscle provides all the ideal conditions for the development of gas gangrene. Other measures than the tourniquet should therefore be adopted, and if for some reason a tourniquet has been applied it is the duty of every medical officer through whose hands the patient passes to remove it.

In most cases there will be no bleeding. If, however, bleeding recommences, then the following methods should be employed: 1. In many cases the obvious source is exposed in the wound and may be seized with pressure forceps and ligatured. This is the ideal. 2. In other cases blood may be seen welling from a deep recess of the wound. Pressure forceps are applied in that area and the bleeding ceases. It is best to leave the forceps on and pack round with gauze. The patient is sent on with the forceps in situ. 3. If neither of these methods is applicable pressure must be obtained by packing the wound. But it is essential that the pack really presses on the bleeding point. The pack must be cone shaped, with its apex at the source of hemorrhage. If the wound aperture be small it must be enlarged by slitting up the skin and fascia. No anesthetic should be used. The pain caused is not great, particularly if the incision be made in a distal direction where the nerve supply has been interrupted by the injury. Gauze is then packed firmly into the wound and a pad placed over it. Firm pressure is made with a bandage, but a wide wooden splint should always be applied to the opposite side of the limb before the bandage is applied, in order to avoid constriction of the extremity.

Cases of penetrating abdominal wounds should be sent by the shortest route to the clearing station. In penetrating chest wounds an injection of morphin should be given. This lessens the respiratory distress. The patient should be placed in the position of greatest comfort, which is usually the semi-recumbent posture. In dresing the wound, it is important to avoid the interference with the free play of the uninjured side of the chest caused by an encircling bandage. Use strapping when possible. There is one class of chest wound that needs special attention. The wound in the parietes may remain open so that air is sucked in and out with respiration, or the blood collected in the pleural cavity may be leaking away through the external aperture. "Sucking pneumothorax" and "leaking hemothorax" are convenient terms for these conditions. In the first the respiratory embarrassment is extreme, and the patient's condition desperate from the start. In the latter, so long as there is a free external leak, internal bleeding is likely to continue. In both infection is certain if the condition continues. In both types of case the wound should be closed before the patient is sent on. Great care must be taken to splint all cases in which joint injury is suspected. Failure to splint favors bleeding, effusion and distention.

2. **Gunshot Wounds of Head.**—Nearly 500 cases of gunshot wounds of the head have passed through Graham's hands. In about 50 per cent. of those cases in which the dura was opened by depressed or indriven fragments of bone, by the missile, or subsequently opened at operation, death ensued. In the cases in which trephining had to be resorted to, the mortality was less than 10 per cent. where the dura was intact, and just over 50 per cent. in those in which the dura was penetrated. Graham operates under local anesthesia in nearly all cases. He lays down the following fundamental principles: 1. Two stereoscopic roentgenograms are essential for accurate localization. 2. Careful neurologic examination will often elicit signs and symptoms which will guide in operative treatment. 3. All cases should be operated early,

before marked sepsis has intervened. 4. The dura should be treated with respect, and the risk of hernia cerebri and meningitis when the dura is opened always borne in mind. The dura should be incised only when urgent symptoms demand it, and not merely to avoid phantom symptoms which may never arise. Headache and a mild degree of optic neuritis, unless increasing in intensity, are not necessarily indications by themselves. 5. An attempt to remove foreign bodies should be made only in the case of those easily accessible, those which can be removed without producing greater damage to the brain than that already created by the entry of the missile.

3. **Traumatic Aneurysm of left Subclavian Artery.**—White cites a case in which he did a successful ligation at the junction of the first and second portions.

4. **Blood Pressure in War Traumatisms.**—Cyriax is convinced that there is a possible source of error in estimating the blood pressure in cases of war traumatisms, namely, that in a certain proportion of unilateral traumatisms the pressures in the two arms may show wide differences. Not only is this so, but the readings on one day may be higher in one arm than in the other, but the reverse a day or two later. When differences occur they generally diminish as improvement proceeds and disappear some time before complete recovery. Thirty-six cases were examined by Cyriax; in twenty-six no difference, or only a slight difference (2 to 4 mm.), was found; such differences were considered negligible. In six cases differences of 6 to 8 mm. were found, which sank to about half this amount about three days later, and disappeared at the end of the week.

Edinburgh Medical Journal

August, 1918, **21**, No. 2

6 Training of Student of Medicine: Essentials of Surgical Teaching. G. G. Turner.—p. 68.
7 Id.; Teaching of Clinical Surgery. F. M. Caird.—p. 77.
8 Id.: Systematic Surgery, That Is, That Outside Hospital and Away from Patients. A. Thomson.—p. 80.
9 Id.: Teaching of Surgery. A. Miles.—p. 83.
10 Id.; Diseases of Children; Suggestion for Preliminary Course in Clinical Medicine. J. S. Fowler.—p. 98.
11 Id.: Teaching of Surgical Diseases of Children. J. Fraser.—p. 104.
12 Id.: Dispensary Practice as Part of Medical Training. J. Orr.—p. 106.
13 Id.: Teaching of Vaccination. W. G. A. Robertson.—p. 111.

Journal of Tropical Medicine and Hygiene, London

Aug. 1, 1918, **21**, No. 15

14 Pellagra. A. Viswalingam.—p. 153.
15 Congenital Defect of Abdominal Wall. W. A. Young and E. J. Wright.—p. 158.

Lancet, London

Aug. 10, 1918, **2**, No. 4954

16 Celiac Disease. G. F. Still.—p. 163.
17 *Bacillary Dysentery. G. S. Buchanan.—p. 166.
18 *Instinct Distortion or War Neurosis. D. E. Core.—p. 168.
19 *Disappointments of Vaccine Therapy. H. G. Adamson.—p. 172.

17. **Bacillary Dysentery.**—An outbreak of bacillary dysentery studied by Buchanan presented the following features: (*a*) sudden onset and brief duration; (*b*) evidence that the infection was water-borne; (*c*) Shiga's bacillus as the infecting agent in all cases; (*d*) evidence of the persistence of Shiga's bacillus when experimentally introduced into water and food; (*e*) noteworthy results of agglutination tests when applied both to dysentery convalescents and to those who had presumably been exposed to infection but had escaped illness.

18. **Instinct Distortion or War Neurosis.**—The diagnosis of the instinct distortion, or war neurosis, Core says, is, as a rule, easy. In the absence of signs of organic disease it may be made in the case of any patient who shows symptoms of nerve irritability and in whom, at one time or another, the element of fear is present. In the event of such symptoms existing in a patient who shows no signs of fear, either in his waking hours or in his dreams, one of two conditions may be present—the war neurosis in the late or habit stage, in which there will be a history of terror dreams at the beginning of the illness; or a suggestion hysteria, in which case no such history is obtainable. Leading questions should not be asked; the patient should merely be asked if he sleeps well, or if he slept well at the time of onset of the breakdown. It sometimes happens, though not in Core's experience very commonly, that an instinct-distortion neurosis and a pure hysteria exist in the same patient.

The treatment of the instinct-distortion neurosis is, in its essence, simpler than that of the hysterias, and more satisfactory. Two fundamentally important principles in treatment should always be kept in mind. The first is that the patient must be removed as quickly as possible from the environment which was responsible for the condition—he ought to be taken right away from any focus of fighting; and the second is that from the very beginning he ought to have it impressed on him that he is going to get completely cured. The removal from the combatant atmosphere is so obvious and so usual that its importance as a method of treatment as well as the light it throws on the origin of the condition is in danger of being overlooked. When such a patient has arrived at the ultimate base wherein the remainder of his treatment is to be effected, if he is still in the active stage he should be kept for the most part in bed and in a ward that is quiet. It is inadvisable that he should be alone. Here he should stay until he is able to sleep without being waked up frequently by his dreams. In the early stages, when he is unable to sleep at all, Core has found the best results with 10 grains of sulphonethylmethane, with or without acetylsalicylic acid, and diminished gradually as the tendency to sleep improves.

During this period it is well to make him realize that he has power over his legs by making him take a few steps every day in the ward, but as long as he is definitely "ill" with his condition he ought to spend most of his time in bed. He should be seen frequently by the medical officer in charge and should be constantly reassured as to his complete curability and encouraged to look on himself as improving from day to day. As the sleep improves and the dreams lessen in intensity he should be made to leave the ward for a short time each day and mix with the other patients, and then the more detailed treatment may be instituted.

These patients manifest one, some, or all of the following disabilities: speech defects, tremors, disorders of gait, mental depression, irritability of the sympathetic nervous system. As regards speech defects and disorders of gait the principle treatment is "careful and painstaking reeducation." Tremors also should be treated with exercises of precision. Mental depression calls for special treatment only when it does not yield to the general treatment. The tachycardia and other signs of irritability of the sympathetic nervous system are best treated by graduated exercises.

19. **Disappointments of Vaccine Therapy.**—The tendency to employ vaccines indiscriminately in all sorts of complaints is deprecated by Adamson because we are not in a position to know when we may do good and when we may do harm by this treatment, since we have no means of estimating its effects in a person whose reactivity has been altered, perhaps profoundly altered, as the result of previous microbic infection. The almost equally prevalent use of vaccines in diseases of nonmicrobic origin is perhaps of less consequence, but it is apt to delay the employment of a treatment more suited to the case and more efficient.

Sei-I-Kwai Medical Journal, Tokyo

July, 1918, **37**, No. 7

20 Relation of Heat Hemolysis and Blood Serum. Y. Kuno.—p. 25.
21 Experimental Study of Heat Stroke. C. Koidzumi.—p. 26.
22 Hyperemesis Gravidarum. N. Kuji.—p. 27.

Archives Médicales Belges, Paris

March, 1918, **71**, No. 3

23 *Wounds of Joints. C. Willems.—p. 225.
24 *Traumatic Effusion in the Knee. J. de Caestecker.—p. 247.
25 *Researches on Syphilis. J. E. R. MacDonnagh.—p. 263.
26 *Tear Sign of Death. A. Lecha-Marzo.—p. 271.
27 Roentgenoscopy in Internal Pathology. M. van de Waele.—p. 279.

23. **Immediate Active Mobilization of Joints After War Wounds, etc.**—Willems' views in regard to the necessity for exercising an injured joint from the very first were summarized in the Paris Letter, p. 842. He evacuates the effusion or pus in the joint at once, and the cure was so complete in some of his knee cases, reexamined several months

later, that the men were unable to recall which knee had been punctured. Even with fracture of the patella, he ties silkworm gut around it and sets the patient to using his knee in five or six days. At first the patient bends his knee very little as he walks, but in less than a month the gait may be entirely normal although the knee may be still swollen a little. In Belgium, France and Germany this method of immediate active mobilization found many adherents for industrial accident cases, and hundreds of cases with constant success were reported and no mishaps. Then came the war, and Willems found that this method could be applied to war wounds, even those with intra-articular fractures and purulent arthritis. Of course immediate walking is out of the question with a destructive war wound of the knee, but active mobilization is possible and imperative.

He rejects passive exercise of the joint as doing more harm than good. When you tell the patient to move his joint as soon as he comes out from under the anesthetic, he declares he cannot do it. He has to be persuaded that he is mistaken and that he can move the joint. He must then be urged to push the muscular movement to the maximum, constantly increasing the effort until the play of the joint approximates normal. It is essential for success that the joint must never be left absolutely still. Fear of fatigue should not deter, as fatigue does no harm. The man does not keep up the effort unless he is reminded and urged frequently to it, under constant surveillance of a personnel skilled in the method, able to teach the men how to exercise the special muscles involved without waste of energy. The movements are always a little more difficult in the morning; the joint seems stiffer. Sometimes sudden pain develops and the man is unable to move the joint. Examination reveals some effusion, and when this is evacuated, the pain and impotence disappear with it. Willems insists that, whatever the extent of the lesion, mobilization is always possible, although of course the extent of the movements possible varies with the character of the injury.

The immediate exercising of the joint is not painful in the true sense of the word unless it displaces large fragments of bone; then active mobilization of the joint should be postponed until this is corrected. Immediate active mobilization is not painful but it is laborious. The limb feels heavy, and the patient has to make an effort to move it. Actual pain is quite exceptional, and then is transient. The patient, however, may pretend that the movements are painful, in order to escape the exertion. On the other hand, many of the wounded affirm that if the joint grows painful during repose, the best means to banish the pain is by starting to exercise the joint. It is in purulent arthritis that early active mobilization gives the most surprising results. At each bending and straightening of the joint the pus is expelled, and thus there can be no retention of secretions, and the joint is thus effectually drained.

24. **Traumatic Effusion in the Knee.**—Caestecker describes the application in forty-two cases of Willems' method of puncture, followed by immediate walking, using the knee. The puncture is made under stovain local anesthesia, as he describes in detail, the knee prepared as for a major operation. The operator stands on the patient's right side, whichever knee is to be operated on. With his left hand he pushes the fluid forward until it lifts the patella and the lateral culdesacs protrude. With the right hand, the bistoury is introduced close to the edge of the patella, about half way up. As the bistoury enters the cavity, it is moved for a quarter of a circle, to make the incision gape. Then the operator manipulates the joint to force all the fluid out through the puncture hole, held open by the bistoury. Then the bistoury is straightened and withdrawn; a small loose dressing is applied, and the patient begins to walk as soon as he gets off the table. At first he is afraid to use his knee, but as soon as he can be persuaded to take a few steps, he finds that it does not hurt him and he is turned loose with the advice to keep on walking, almost without stopping, even to the point of fatigue. With simple hemarthrosis, the blood does not clot for several days. Whenever clots are found, this indicates some lesion in bone or cartilage. The twenty-five hemarthrosis cases are described in detail. The cure is very rapid, all objective findings returning to normal in three or four days, and the last trace of the subjective disturbances vanishing by the end of the first or second week. No tendency to atrophy of any muscles was observed in any instance. The effusion returned in 23.5 per cent. of the seventeen hydrarthrosis cases and in 40 per cent. of the others, but they yielded to a second puncture. He insists that there is no exception to the rule that every case of effusion in the knee should be punctured and the knee used at once.

25. **Research on Syphilis.**—McDonagh's article appears to be practically a translation of one published in the *Journal of Cutaneous Diseases*, 1917, **35**, 222.

26. **Diagnosis of Actual Death.**—Lecha-Marzo reviews the various means for distinguishing between real and apparent death, and reports constantly reliable findings with his own test, the tear test. Tears have an alkaline reaction in the living. The reaction was invariably alkaline in 542 men and 537 women, as also in 1,104 hospital inmates, including fifty-six with blepharitis, thirty-six with lacrimal fistulas, and forty-nine with iritis. After death, the reaction veers to acid; the secretions of the eye never give an acid reaction during life. The simplest way to apply the test is to insert a piece of litmus paper between the eyelids, placing it on the eyeball and pressing the eyelids lightly down on it. In the living subject a blue spot appears on the paper; in the cadaver there is no change of tint, or the pink tint becomes still pinker.

Bulletin de l'Académie de Médecine, Paris

July 16, 1918, **80**, No. 28

28 *Normal Parasitism and Microbiosis in Muscles. V. Galippe.—p. 43.
29 *Migration of Projectiles in Blood Stream. C. Achard and L. *Binet.—p. 72.*
30 *Medical Victims of Hypochondriac Murderers. Dupré.—p. 78.
31 *Cancer and War. E. Forgue.—p. 84; L. Bérard.—p. 103.
32 *Prophylaxis of Pulmonary Tuberculosis. Vidal.—p. 91.
33 *Treatment of Congenital Dislocation of Hip Joint. F. Calot.—p. 107.

28. **Normal Parasitism of Muscles.**—Galippe refers to his previous communications on the presence of living elements in the normal muscle tissue. Time and experience, he says, have confirmed his assertions that a healthy muscle is not aseptic; it would be impossible for the muscle to function without this normal parasitism and microbiosis. There could be no autolysis of muscle tissue without them. In a war wound, the devitalized muscle tissue may transform the normal into a virulent parasitism, as surgeons all recognize now. Hence surgeons strive not only to clear out as rapidly as possible all the devitalized tissues, but also to refrain from manipulation of the sound tissue left. Galippe discusses the subject of normal parasitism and microbiosis mainly in regard to cold storage of meats.

29. **Migration of Projectiles in Blood Stream.**—Achard and Binet conclude from their clinical and experimental experience that the force of the stream in the arteries—but not in the veins—is enough to move some projectiles along. Before an operation, the projectile should be located anew and the part placed so that gravity will not aid in the change of position of the projectile.

30. **Medical Victims of Hypochondriac Murderers.**—Dupré describes a special type of insanity in regard to which physicians should be on their guard, as these insane are homicidal and they select their victims among medical men. The recent assassination of Professor Pozzi was of this type. Their hypochondriac theme is almost invariably the genital or perigenital region, some impairment of function for which they seek medical aid and insist on an operation. The physician operates on a hydrocele, a varicocele, a chronic epididymitis or anal fistula or urethral stenosis. After the operation, the pains, impotence, disturbances in local sesibility and the *idée fixe* persist the same as before. The man besieges the physician with letters, calls and more and more pressing claims to the effect that he had aggravated the impotence and the pain, and had ruined the man's health and reason for living. The man insists on his claim to the cure which the operator in all good faith had assured him. The next step from this hypochondriac revindication is that the man

becomes a "persecuted persecutor." The physician thus hounded by the man finally shuts his door to him, paying slight heed to the mental trouble which he regards as of no consequence, thus failing to recognize the most dangerous of the mentally unbalanced. The physician's death sentence has been pronounced, as any alienist knows who has studied the evolution of this psychosis to its tragic outcome. In course of time, usually several years later, the hypochondriac, despairing of recovery and repulsed as a nuisance by the one he considers responsible for his physical deterioration, decides to take justice into his own hands. Providing himself with a knife or a revolver he proceeds to a final interview, and unhesitatingly and coolly kills his victim.

The list of martyrs thus murdered by these homicidal hypochondriacs contains names of obscure and of world known physicians. Dupré says, "I regret to confess that this is passed over in silence in most of the modern manuals of psychiatry. Several of them give no reference at all—a grave omission—to this psychosis and the laws of its homicidal reactions."

Dupré enumerates a number of such cases, mentioning the names of Drs. Gray, Oronge, Recoulet, Bleynie, Leclerc, and the quite recent cases at Paris of Guinard and Pozzi. Pozzi's assassin committed suicide at the same time, and necropsy showed the scar of Pozzi's operation on the scrotum, probably for varicocele. Dupré adds that the only case of this hypochondriac "persecuted persecutor" type of delirium in a woman was encountered recently, the patient being on the point of shooting Drs. Massary and Mauclaire in turn when her pistol was taken from her. He emphasizes that mental diseases run a regular course according to laws as fixed as those governing the best classified internal and superficial diseases, adding, "Psychiatry recognizes well established laws in diagnosis and prognosis, and although they do not always suffice to insure the cure of the mental disease, yet they permit classification and prognosis, and enable us to foresee the patient's acts."

31. **Cancer and War.**—Forgue's tabulated details show that a connection between active service and the development of a cancer has been admitted in 297 cases. In nineteen cases a war wound was accepted as having been the predisposing factor; in all the others, the circumstances of the service were regarded as having conditioned the development or the aggravation of the cancer. In only 486 cases to date is cancer supposed to have developed among the soldiers, and the data were incomplete in all but 297 cases. Almost 50 per cent. of these cases were in men between 40 and 45. Bérard relates that in seventy-one cases of cancer in men on active service, seven of the men had a history of trauma affecting the region where the cancer developed.

32. **Prophylaxis of Tuberculosis.**—Vidal suggests among other measures that every moving picture show on Sundays and holidays should be compelled to run some educational film in this line.

33. **Congenital Dislocation of Hip Joint.**—Calot presents evidence to show the perfect results obtained in treatment of congenital dislocation when the principles he advocates are scrupulously applied. (They were described in The Journal, Aug. 17, 1918, p. 605.)

Bulletins de la Société Médicale des Hôpitaux de Paris

May 3, 1918, **42**, No. 15

34 *Pyloric Incontinence. P. Carnot and H. Mauban.—p. 407.
35 *Alkaptonuria. A. Lahille.—p. 418.
36 *Mitral Stenosis of Tuberculous Origin. Barbier.—p. 422.
37 *Lethargic Encephalitis. P. Sainton.—p. 424.
38 *Venesection after War Wounds of Chest. G. Blechmann.—p. 427.
39 *Serotherapy in Acute Poliomyelitis. A. Netter.—p. 431; G. Etienne.—p. 432.

34. **Incontinence of the Pylorus.**—There may be insufficiency of the pylorus of organic or functional nature, with resulting disturbances as the food is passed along too soon for adequate digestion in the stomach. The organic cases can be differentiated by the lack of any modification when the subject drinks something hot, or acid, or ice cold. This causes the pylorus to contract if it is capable of contracting. Incontinence of the pylorus is probably a factor in certain forms of diarrhea.

35. **Alkaptonuria.**—Lahille reports a case of alkaptonuria in a soldier, accompanied by pain in the lumbar region, and modified by sleep and repose. There was no alkaptonemia.

36. **Mitral Stenosis of Tuberculous Origin.**—The mitral stenosis developed under Barbier's eyes, the girl of 13 being under treatment for pulmonary tuberculosis. Necropsy showed it to be of a specially fibrous type.

37. **Lethargic Encephalitis.**—Sainton reports a typical case in a man of 51, previously robust. Headache, a chill and somnolency, with subdelirium, developed suddenly, with tremor and death the tenth day with bulbar phenomena, but no symptoms on the part of the ocular muscles, and none pathognomonic of meningitis. From the very first, the man held his head on one side, and Hontang noticed this deviation of the head in a case in a man of 68, likewise fatal.

38. **Asphyxia and Hypertension After Wounds of Chest.**—Blechmann calls attention to the extremely high blood pressure and tendency to asphyxia frequently noted after war wounds of the chest, and to the life-saving influence of venesection. He cites five typical cases to illustrate the great relief that follows withdrawal even of 125 gm. of blood.

39. **Serotherapy in Acute Myelitis.**—Netter relates that he now has a record of sixty-two cases of acute poliomyelitis given serotherapy with serum from convalescents. In a case reported by Etienne, the injection of serum was not made until the seventh day and only one injection was made, recovery following on it at once. The great difficulty, Netter remarks, is in obtaining the serum from persons who have already had the disease; it is hard to persuade them to give up their serum. He mentions that Neustaedt and Bantzhaf have succeeded in obtaining an effectual antiserum from horses injected with the products of autolysis of the nerve centers from men and monkeys that had succumbed to poliomyelitis. In Etienne's case the serum used came from a girl whose paralysis from the disease dated from about thirteen months before. Only 5 c.c. had been injected, and about 25 c.c. of limpid spinal fluid had been released, under high pressure, just before. The man had had a temperature of 41.2 C. at first but it had dropped to normal two days before the injection, and the paralysis, total at first, had shown slight indications of subsiding.

Paris Médical

June 22, 1918, **8**, No. 25

40 *War Psychoneuroses. M. Villaret.—p. 481.
41 Skin Grafts for Extensive Wounds. L. Moreau.—p. 488.
42 *Malformation of Jaws. P. Robin.—p. 492.

June 29, 1918, **8**, No. 26

43 *Auscultation in Sphygmomanometry. L. Tixier.—p. 497.
44 *Plastic Operations on Skull. L. Dufourmentel.—p. 503.
45 Scurvy and Dysentery. G. Schreiber.—p. 508.

40. **Treatment of War Psychoneuroses.**—Villaret has succeeded in having his ideas carried out in respect to the segregation in a special neurologic center of the men with war psychoneuroses, so that they can be given the isolation and special reeducation they require. Before this was realized, the men discharged as cured by one hospital would apply to others in turn, their psychoneuroses growing more and more inveterate until they obtained proper treatment. This has to be a combination of physical, psychic, pedagogic and other methods—all under strict medical surveillance. He seeks out the cases in the different hospitals in the region, visiting each every two weeks. The men are not allowed to leave the institution except as they are given brief good-conduct leave. The men who are improving are made monitors over the others, and are given leave of absence more often. The life in the hospital is carried on with military precision, by bugle calls. No crutches or canes are allowed, but two tall Alpine stocks are given those who feel they must have support. As they are so inconvenient, the men soon discard them.

The men are kept systematically busy all the time; a third of the day may be given up to different forms of treatment, another third to reeducation, and one third is always given to agricultural or vocational training and sports or military will inform the nurse of the risk she is running of contracting a contagious disease. Two other sections specify that the physician can without conflicting with his professional obligations denounce crimes of which he may learn in the practice of his profession, and reveal the secret when it is a question of preventing a judicial error.

Other sections state: "The physician's office is neutral ground where he may receive and treat all the sick, whoever may be their attending physicians and whatever the circumstances that may have preceded the office consultation. . . . A married woman should never be examined except in the presence of her husband or some member of her family *authorized by him*. . . . Except in emergencies, general anesthesia should not be administered unless there are at least two qualified physicians present. . . . The obstetrician must obtain the authorization from the woman before doing therapeutic premature delivery or abortion or embryotomy on the living fetus."

The "precepts for the public in their relations with physicians" state: "The benefits which the public derives from medical charity, incessantly practiced, are so numerous and so diverse that the profession, considered as a whole, has a legitimate right to the consideration and the respect of the community. The community should appreciate at their true value the titles, the merits and the labors of the physician; should discriminate between true science and the pretensions of ignorance, between honorable professionals and the *industriales de la medicina*." "The public should favor and stimulate by every means the study of the medical sciences. Every sick person should select for his attending physician one who has received a regular and complete scientific medical education, as it is impossible to suppose that in medicine—a science difficult and complicated beyond all others—knowledge is intuitive or can be acquired with greater ease than other sciences."

"The attending physician once selected, should not be changed, as this physician's continued experience with the constitution, the habits, the hereditary predispositions and the idiosyncrasies of his patient renders him better able to conduct treatment with intelligence and success. The patient should avoid the visits, even the social and friendly visits, of every physician except his attending physician, and if he cannot avoid them, he should not refer to his sickness or the treatment and regimen which have been prescribed for him." "The patient or the family wishing to change physicians, *must first pay the charges of the hitherto attending physician* and courteously inform him of the reasons for the change." The last sections warn the patient to be always ready to receive the physician when he comes, to save wasting his time, and not to insist unnecessarily on his coming at hours that interfere with meals and rest. "After recovery, the patient should not forget the obligations of a moral nature which he has contracted with the physician, for the services of a physician are of such a nature that mere pecuniary remuneration does not discharge the obligation."

Medicina Ibera, Madrid

May 25, 1918, **3**, No. 29

62 *Present Status of Ocular Tuberculosis. Basterra.—p. 213.
63 Fracture of the Patella. J. Blanc.—p. 216.
64 The Tonsils. Prada.—p. 218.
65 Cysts on the Face. Sicilia.—p. 220.

June 1, 1918, **2**, No. 30

66 History of Medicine in Spain. E. G. del Real.—p. 241.
67 Perforating Gastric Ulcer. J. Blanc.—p. 244.
68 Psychasthenia. A. Salazar.—p. 245.

62. **Ocular Tuberculosis.**—Basterra remarks that the tuberculous origin of ocular affections of the most varied kinds is recognized to be far more common than was formerly supposed possible. Experience has demonstrated further the comparative frequency of spontaneous cures of what seemed very grave lesions. Small tuberculous lesions of the conjunctiva seem most promising for excision or cauterization with heat or chemicals. He excised a lesion of this kind with the bistoury a year ago and applied the actual cautery to the site. The cure has been complete to date. In another case a woman of 72 had tuberculous lesions in the conjunctiva of both lower lids. They were treated with 50 per cent. lactic acid, and the patient has been cured for over a year. Surgical treatment is also the best for tuberculous lesions in the lacrimal sac and duct. Cases are known in which tuberculous lesions of the eyes absolutely rebellious to local treatment, subsided spontaneously during a course of sanatorium treatment or sojourn in the mountains.

The records of tuberculin in ocular tuberculosis are conflicting, but enough successful cases have been reported to justify its use in connection with general and local measures. The technic for giving tuberculin for diagnosis and treatment is explained in minute detail, as also the various local measures *that have been* recommended.

Prensa Medica Argentina, Buenos Aires

June 30, 1918, **5**, No. 3

69 *Joint Manifestations of Tardy Inherited Syphilis. M. R. Castex and R. Denis.—p. 25. Continuation.
70 Diagnosis of Tuberculosis in Children. G. A. Alfaro.—p. 31.
71 *Reconstruction of Lip after Removal of Cancer. A. A. Alsina.—p. 34.

69. **Joint Manifestations in Tardy Inherited Syphilis.**—Castex and Denis continue their article, calling attention in particular to the case they describe in which spondylitis with ankylosis, of the Bechterew type in its most pronounced form, is evidently a manifestation of tardy inherited syphilis. They have been unable to find a similar case on record in which syphilis was incriminated. The syphilitic origin in this case is evidenced by joint manifestations elsewhere which yielded to treatment for syphilis, and by syphilis in the parents. The spinal ankylosis had become too solidly established during the eight years since it first attracted attention for any benefit to be anticipated from antisyphilitic measures at this late date. The patient is a married man of 35, who at the age of 25 developed lumbar pains and supposed sciatica, rebellious to treatment as for rheumatism, and the ankylosing spondylitis soon followed. Under vigorous treatment for syphilis there has been no further progress of the spondylitis, and all the other disturbances have subsided. Another argument in favor of the inherited syphilis as the cause of this deforming spondylitis is the fact that the patient's brother recently developed an acute and extremely painful hydrarthrosis of the elbow, rebellious to the salicylates, which subsided promptly under potassium iodid. Both the men present unmistakable stigmata of inherited syphilis. In the majority of the cases illustrated, the lesions had been ascribed to tuberculosis, and futile treatment long applied on this basis and operations done. An increase in the pain at night is suspicious of a syphilitic origin. In case of doubt, they add, a well conducted intensive course of specific treatment never does harm.

71. **Reconstruction of Lower Lip After Removal of Cancer.**—Alsina reports excellent results from application of Doyen's three-triangle method, with illustrations of a case.

Revista Ibero-Americana, Madrid

April, 1918, **39**, No. 164

72 *Connection between Mikulicz', Hodgkin's, Banti's, Alibert's and Paget's Diseases. D. R. Lozano.—p. 241.
73 Physiotherapy of Gastric Ulcer. S. Carro.—p. 255.
74 *Epinephrin in Asthma. G. Triviño.—p. 271.
75 Treatment of Valvular Disease. A. Mut.—p. 277.
76 Blood Diseases. G. Pittaluga.—p. 287.
77 Transvesical Prostatectomy. C. Negrete.—p. 299. Conclusion.

72. **Connection Between Mikulicz', Hodgkin's, Banti's, Alibert's and Paget's Diseases.**—Lozano concludes from study of the literature and his own clinical experience that Mikulicz' and Hodgkin's diseases are very much alike, and transitional forms are comparatively common. The same is true, although to a lesser extent, of both Mikulicz' and Hodgkin's disease and Banti's disease. Sometimes a fungoid mycosis and Paget's disease present clinical lesions similar to those of these three diseases. If all these diseases are of microbian origin, the portal of entry may be supposed to be in the salivary glands for Mikulicz' disease; in the pancreas in Banti's; in the mamma in Paget's and in the sweat glands in Alibert's. Extreme caution in treatment is necessary as surgical intervention has proved useless or directly injurious,

and roentgen treatment has repeatedly produced disastrous consequences, precipitating cachexia.

74. **Epinephrin in Asthma.**—Triviño has used epinephrin in twenty-two cases of asthma and, with one exception, the results were highly encouraging. In this one exception, there may have been a complicating emphysema. In other cases the patients were always relieved within twenty minutes. He followed the technic advised by A. Hertz who has had considerable clinical experience besides his experience with asthma in his own person. He found that injection of 3 drops of the usual 1 per thousand solution of epinephrin gave prompt relief, but the by-effects were disagreeable. Reducing the dose to 2 drops or even 1 drop proved usually efficient without the by-effects. Triviño did not find the relief so immediate as others have reported, but it was always experienced within twenty minutes.

Revista del Instituto Bacteriologico, Buenos Aires

January, 1918, **1**, No. 2

78 *Normal Beef Serum in Human Anthrax. J. Penna.—p. 115.
79 Necessity for Standardization of Anti-Anthrax Vaccine. R. Kraus and P. Beltrami.—p. 133.
80 Spontaneous Sarcoma in Guinea-Pig. C. Miguez.—p. 147.
81 Transmission of Epithelioma of White Rat. A. H. Roffo.—p. 155.
82 *Toxicity of Emetin. J. Guglielmetti. B. A. Houssay and R. F. Vaccarezza.—p. 161.
83 Action of Snake Venoms on Carbohydrates, Fats and Milk. B. A. Houssay and J. Negrete.—p. 173.
84 *Production of Diphtheria Antitoxin. R. Kraus and A. Sordelli.—p. 195.
85 *Infectious Bulbar Paralysis. J. Negrete and Kantor.—p. 205.

78. **Normal Beef Serum in Treatment of Anthrax.**—Penna gives the bases and the history of this treatment and the favorable results, as already mentioned in these columns and editorially.

82. **Toxicity of Emetin.**—The experimental research related demonstrates that the promptly lethal dose for laboratory animals is from 0.0075 to 0.02 gm. per kg. The drug displays marked cumulative action; dogs succumb when given one tenth of the fatal dose on successive days. The lethal dose for man is not known, but severe toxic cumulative action is reported in three adults given emetin for amebiasis, one taking thus a total of 1.08 gm. of emetin hydrochlorid in the space of thirty-three days by intravenous injection. Another was given five daily subcutaneous injections of 0.10 gm. and the other patient, eight of 0.06 gm. each, then suspension for eight days and resumption of the series. It had to be arrested at the fourth injection of the second series on account of the severe toxic symptoms. They persisted for two weeks.

84. **Improved Technic for Production of Antitoxic Serums.**—The Journal has already mentioned the success of Kraus and Sordelli in obtaining antitoxic serums of greater potency and in a much shorter time than with other technics (twenty days). They found it best to use old horses, and injected the toxin, neutralized with antitoxin, repeating the injections twice a week in progressive doses.

85. **Infectious Bulbar Paralysis.**—Negrete and Kantor report experimental research on this disease of domestic animals. It is known as pseudo-rabies in Brazil, the only country in South America in which it has been reported, but it is entirely distinct from rabies. The mouth and nose seem to be the natural portals for infection, and the nasal secretions and the urine of the infected animals are infectious. They found it impossible to immunize against the infection.

Revista de Medicina y Cirugia, Havana

July 10, 1918, **23**, No. 13

86 *Idiosyncrasy for Dichloramine-T. E. F. Soto.—p. 351.
87 *Ocular Tuberculosis. F. M. Fernandez.—p. 353.

86. **Idiosyncrasy to Dichloramin-T.**—Soto relates that he applied dichloramin-T in a case of rebellious purulent ethmoiditis. He ordered the woman to use the dichloramin-T in a 0.5 per cent. dilution, in the form of a spray, morning and evening. The atomizer used was made entirely of glass, and she was instructed not to squeeze the bulb more than ten times at one application. By the fifth day of this treatment the nose, lip, and cheeks had become much swollen and blistered, as also the nasal mucosa. On suppression of the spray the whole subsided in a few days. Thinking that the preparation of the spray had been defective, he had a new supply prepared, but this caused the same disturbances as before, even more pronounced.

87. **Ocular Tuberculosis.**—Fernandez discusses ocular tuberculosis in its various localizations, the diagnosis, treatment and prognosis. As a rule, he remarks, ocular tuberculosis is secondary, but usually the primary focus is latent. Ocular lesions rarely accompany pulmonary tuberculosis. Any ocular mischief of a chronic character should be regarded with suspicion, and the diagnosis made by exclusion, the tuberculin test, and the family antecedents.

Revista Medica Cubana, Havana

May, 1918, **29**, No. 5

88 Science in General. J. Santos Fernandez.—p. 233.
89 *Helminthology of Cuban Children. E. Cuervo.—p. 242.
90 Tumors of Umbilical Cord. S. G. Marruz.—p. 247.
91 Recurring Torsion of Spermatic Cord. G. Pujadas.—p. 250.

89. **Helminths in Children in Cuba.**—Cuervo cites the works that have been published to date on intestinal parasites in Cuba, and reviews his own research.

Revista Medico-Cirurgica do Brazil, Rio de Janeiro

May, 1918, **26**, No. 5

92 Gorgas' Work in Panama. J. P. Fontenelle.—p. 193.
93 *Medicolegal Institutes. L. Ribeiro, Jr.—p. 196; E. N. Silva.—p. 204.
94 *Host of the Trypanosoma Cruzi. C. Chagas.—p. 220.

93. **Necessity for Founding Medicolegal Institutes.**—Ribeiro laments that the teaching of forensic medicine at the University of Rio de Janeiro has had to be exclusively theoretical except when the professors in charge have accomplished the impossible in procuring material. There is no regular provision for practical instruction and expert forensic medical testimony. Silva describes the morgue and medicolegal institutes in other cities. Even Bahia in northern Brazil has its new autonomous Instituto Medicolegal, and Prof. O. Freire, in charge, has organized in connection with it a medicolegal council.

94. **Permanent Host of Trypanosome of Chagas' Disease.**—Chagas found that fully 45 or 50 per cent. of the armadillos—mammals which abound in Brazil—caught in regions infested with Chagas' disease contained the special causal trypanosome. The animal does not seem to be affected at all by the presence of the trypanosome although the latter is extremely virulent for man. The intermediate host, the biting bug, *Lamus megistus*, may possibly be a parasite of the armadillo, as certain epidemiologic facts observed in Africa suggest that the trypanosome of African sleeping sickness can flourish under natural conditions in vertebrates other than man.

Revista de Medicina y Cirugia Practicas, Madrid

July 7, 1918, **120**, No. 1513

95 *Juvenile General Paralysis. R. del Valle.—p. 5.

July 14, 1918, **120**, No. 1514

96 *Diagnosis of Sciatica. J. Blanc y Fortacin.—p. 39.

95. **Juvenile General Paralysis.**—Del Valle cites the compilation in a recent Paris thesis of sixty-three cases of general paralysis in persons between 13 and 22 years old. The author was impressed with the frequent coexistence of infantilism of thyroid origin, and in one case he observed marked improvement under thyroid treatment.

96. **Diagnosis of Sciatica.**—Blanc warns to be wary of diagnosing sciatica in the young. In a case described a youth of 16 on getting up after resting for a few minutes after an athletic game, experienced intense pain in the sciatic region with contracture of the psoas. The pain continued intense for two weeks with no relief from measures applied for the assumed sciatica. The neck of the femur was found to be fractured, with sequesters and signs of an old fungous process. Resection of the joint was imperative and the postoperative course has been excellent. Roentgenoscopy in this case had failed to give instructive findings.

Revista Medica del Uruguay, Montevideo

May, 1918, **21**, No. 5

97 *Annular Dystocia. J. C. Carlevaro.—p. 199.
98 *Placenta Praevia. C. P. Colistro.—p. 204.
99 *Familial Periodic Paralysis. P. E. Nuñez.—p. 208.
100 *Hernia of Pouch of Douglas. C. Stajano.—p. 229.

97. **Annular Dystocia.**—The special feature of the case reported was the successful application of the forceps according to Loriente's single hand method.

98. **Twin Birth with Placenta Praevia.**—The placenta praevia was of the marginal type. Treatment of the hemorrhage was exclusively obstetrical as in áll cases of low placenta praevia at the Montevideo maternity. The mortality of the thirty mothers was 3.33 per cent., and of the children, 23.24 per cent.

99. **Familial Periodic Paralysis.**—Nuñez remarks that only about seventy cases of this disease are on record, and he adds another family to the list. The grandfather died at 58 after having had attacks of paralysis recur every two or three months after the age of 16. The attacks always came on during sleep, and they never lasted for more than two days. Of his eight children, three presented similar attacks, beginning at 13, 16 and 19, but the intervals were longer, sometimes over a year. One is a bachelor, the others are women with seven and two children. Of the two children, one boy is epileptic, the other boy healthy, but neither is over 9. The three boys in the other woman's family of seven children all present the disease.

Of the total seven cases, two terminated fatally during an attack. In none of the cases are there prodromal symptoms. One of the grandchildren—a painter of 23—had forty-six attacks in the hospital during the year of his stay. The electric reactions are remarkable in that the muscles and nerves seem well nourished and active and respond normally to electric tests during the intervals, but during the attack they respond no more than if they were in a cadaver. As soon as the attack is over, however, they regain at once their full sensibility.

100. **Hernia of Pouch of Douglas.**—The woman of 66 had borne eight children. She applied for relief from a large tumor which appeared in the vulva at the least effort, and had been growing larger during the last six years.

Revista Sud-Americana de Endocrinologia, etc., Montevideo

July, 1918, **1**, No. 7

101 Bacilli Resembling Anthrax Bacilli. C. Spada, Jr.—p. 167.

Semana Medica, Buenos Aires

May 23, 1918, **25**, No. 21

102 Campaign against Tuberculosis. L. Agote.—p. 579; E. R. Coni.—p. 592.
103 Radiologic Ambulance: Heuser Model. C. Heuser.—p. 583.
104 The Vegetable Pear as Useful Fruit. A. D'Alessandro.—p. 586.
105 *Simulation of Sex. M. G. Vasquez.—p. 588.
106 Visual Acuity in the Schools. P. B. Ferro.—p. 589.

105. **Simulation of Sex.**—Vasquez was called to make out the death certificate for a man of 90 who had been born and died on a small farm near Buenos Aires. He had buried his wife many years before and had always been a respected citizen. The body proved to be that of a normally formed woman, with hymen intact.

Siglo Medico, Madrid

July 6, 1918, **65**, No. 3369

107 Facial Paralysis in a Syphilitic. E. F. Sanz.—p. 522.

July 13, 1918, **65**, No. 3370

108 *Diathermy in Gonorrhea. B. N. Canovas.—p. 545. Conclusion.
109 Photographic Register of the Pulse. M. Gil-Casares.—p. 554. Conclusion.

108. **Diathermy in Gonorrhea in the Male.**—Canovas reviews his favorable experience with gonorrhea given from five to thirty applications of diathermy. Seven of the men were cured, their gonorrhea dating from one to fourteen weeks, and three years. In eight other cases there was a clinical cure but the bacteriologic cure was not verified. Five others were much improved but a complete cure was not established although thirty-five applications were made in one case, dating from thirteen months, and eighty applications in a case of only two weeks' standing. one patient showed no benefit from the diathermy; his g rhea was of seven years' standing and forty-one applic were made. One of the men who had gonococcus pros had suffered for two years from pain in the anal and p region with recurring gonorrheal discharge. By the application of the diathermy, the pains and the disc disappeared and did not return even after drinking cop of beer. Five more applications were made to confir cure. There was gonococcus prostatitis in a number cured cases.

Mededeelingen van de Burg. Geneesk. Dienst, Bat

1918, No. 2

110 Systematic Study of Health Conditions among the Wor Lampong District, Java. H. N. van der Heyden and ot p. 1. Dutch and German edition.

Hygiea, Stockholm

April 30, 1918, **80**, No 8

111 *Hemolytic Jaundice. V. Edman.—p. 433.
112 Pathologic Changes Found in Spleen in Two Cases of Co Hemolytic Jaundice. N. Wessen.—p. 453.

111. **Splenectomy for Hemolytic Jaundice.**—Edman two cases of congenital hemolytic jaundice treated by ectomy, and several other cases happen to be mentic the different society proceedings in this issue, with sions and review of the literature. Edman's two case the first published cases in Sweden in which the ope was done on a correct diagnosis. His patients were a aged woman and her son of 18. Both mother and so presented jaundice since early childhood, and the sple gradually become much enlarged. Both had been sub to vigorous roentgen treatment without benefit, except subsidence of the spleen. The other symptoms had b aggravated. The mother had hemoglobin of 45 per reds 2,940,000 and blood index of 0.76, and with the resi test the findings were 0.46 to 0.50 per cent. Six weeks the splenectomy the figures were: hemoglobin 58; 4,610,000; blood index 0.84, and the resistance findings n The jaundice bleached out by the third day and there wa a trace left in two weeks, and tests for urobilin and bilinogen have been constantly negative since in both m and son. In two cases of hemolytic jaundice Troell ir of removing the spleen, ligated part of the hilus, seekin to shut it off almostly completely from the circulatio milder equivalent for splenectomy in a girl of 16 with B disease, and in a woman of 65, with pernicious anemia. effect on the blood disease seemed to be excellent, bu spleen was too pathologic to stand it, and sloughing a fistula required operative measures later. The findings ligation of a normal spleen in a healthy laboratory cannot be compared with those in the pathologic splee Banti's disease or hemolytic jaundice. Neither the lig nor splenectomy arrested the fatal termination in the pernicious anemia cases. Progressive improvement was nounced in his hemolytic jaundice case after splenect

Ugeskrift for Læger, Copenhagen

July 11, 1918, **80**, No. 28

113 *The Coarse Bread Question. E. C. van Leersum.—p. 108
114 Quackery in Denmark. G. Jepsen.—p. 1094.

113. **Absorption of Nitrogen from Coarse Bread.** Leersum presents evidence to show that the degree utilization of the nourishment in coarse bread depends length of the sojourn of the food in the alimentary When it is passed along rapidly, with vigorous peristal does not afford the nourishment that it does when the movements are sluggish and time is given for greater ab tion. This explains the differences between the reported by different writers on this subject of coarse For the constipated, the presence of the bran ensures utilization of the nutrient elements in the bread. For pe with normal peristalsis, the admixture of bran stim the peristalsis, and thus hastens the passage of the food, the consequence that the use of coarse bread signifies a in the amount of nitrogen absorbed.